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ABSTRACT

Four research papers discuss the influence of social cues on children's behavior. Specifically, the focus of this program of research was to systematically investigate the impact of two classes of social cues: (1) implicit or explicit instructional cues inherent in social interactions, and (2) inferred or actual evaluative cues present in interpersonal or achievement situations. An attempt is made to study the problems addressed through a broad range of psychological approaches, including individual analysis and group designs, and variable manipulation within single sessions as well as across repeated sessions. A central theme of the papers is the subtle but powerful effects of the social cues under study. Papers are titled: (1) "Implicit Instructions and Social Influence in 'Generalized Imitation' and Comparable Nonimitative Situations", (2) "The Effects of Adult Presence and Stated Preferences on the Reinforcement Control of Children's Behavior", (3) "Individual Differences in Children's Response to Adult Presence and Evaluative Reactions", and (4) "The Effects of Social Cues on Children's Attributions of Success and Failure and On Generalization of Imitation." The document includes reactions and contributions from two discussants. (DP)

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THE IMPACT OF SOCIAL CUES ON CHILDREN'S BEHAVIOR *

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Introduction

Social cues influence children's behavior by providing information about the outcomes of possible alternative actions. In essence, they help the child define situations by allowing him to predict what will happen if he behaves in a particular way. If a major goal of the child in a given situation is to reduce uncertainty and maximize rewards, then it is apparent that sensitivity to and utilization of social cues are of great value.

There is such a broad range of social cues that they are present by necessity in virtually every study of children. Even when narrowing one's focus to those studies that have explicitly examined social cues, there is an overwhelming body of research. It would be presumptuous to suppose that any program of research, however ambitious, could clarify or integrate this large domain. Rather, what we hope to do in this group of papers is to define and discuss research on a set of social cues that rarely have been the focus of systematic study but, in fact, are important determinants of a variety of behaviors. Specifically, the symposium examined the impact of two major classes of social cues:

1. Implicit or explicit instructional cues inherent in social interactions.
2. Inferred or actual evaluative cues present in interpersonal or achievement situations.

As we employ them in our research paradigms, social cues, in the form of implicit or explicit instructions, most often precede the child's performance of some task and thereby communicate what is expected of him in that situation. He may then predict what behavior will lead to success versus failure, approval versus disapproval, reinforcement versus non-reinforcement, or some other outcome.

On the other hand, social cues providing evaluation almost always occur after some response and communicate to the child whether his actions were appropriate or successful. The child can then judge what subsequent behavior will either maintain the positive outcomes or change or reduce the negative ones.

According to this approach, in order to increase the accuracy of his prediction of outcomes the child must learn to respond appropriately to a wide variety of cues communicated in a wide variety of modes and to consider the context in which they are embedded. Often the cues are transmitted via explicit verbal statements that define the rules or contingencies in the situation unambiguously. However, in most cases, the child must go beyond the information provided, extending, interpreting, and, in some instances, rejecting what has been explicitly stated. For example, in the generalized imitation paradigm, the child may receive explicit instructions to perform only some of the responses and explicit reinforcement for performing only those responses. Yet it has been demonstrated that the social demands (implicit instructions) in the situation result in his imitating all of the responses that are modeled. In achievement situations interpretation is often necessitated by the ambiguity of the feedback presented. For example, a failure may be the result of lack of ability, insufficient effort, an unreasonably difficult task, or arbitrary criteria for success. In addition, it may or may not imply social disapproval. Even in the absence of overt feedback, the mere presence of an observer may imply that evaluation is taking place, and the child may infer meaning from the non-reaction, e.g. that it implies approval (or disapproval) of the adult. The ways in which the child interprets the feedback will determine his subsequent behavior.

The goal of our research, then, is to explore the factors that determine the ways in which a child, faced with obtaining some goal or fulfilling some criterion of performance, will respond to a given instructional or evaluative cue. We have been applying a variety of research strategies and approaches to these common social phenomena in a co-operative effort. Both individual analysis and group designs are used, and variables are manipulated within single sessions as well as across repeated sessions. While some of the studies are clearly identified with the operant or social learning traditions, much of the theory and research represents efforts to mix and blend elements of these traditions to produce a broader and stronger attack on the problems addressed.

The research provides a multifaceted analysis of the function of various social stimuli. For example, both Redd and Hill are interested in effects of positive versus negative feedback from adults when paired with non-reaction. Redd focuses on the reinforcement and informational value of such overt feedback when pitting adult preferences against tangible reinforcement for individual children. Hill focuses on the meaning and motivational properties of the non-reaction of the adult in highly structured two-choice learning situations. Both lines of research suggest that children will respond more to negative-blank than positive-blank feedback, but only under certain evaluative conditions and on certain tasks or in certain situations. In a similar vein, both Steinman and Dweck are interested in the generality of children's tendency to imitate responses that have been observed and reinforced or not. Steinman studies the effects of implicit and explicit instructions and social control factors on the child's tendency to imitate independent of reinforcement contingencies and across different models or behaviors. Dweck, on the other hand, is interested in the rules the child develops or follows in generalizing

imitative responding across situations or behaviors. Thus, in a very real sense, each investigator serves to compliment the work of the others.

A central theme of the papers is the subtle but powerful effects of the social cues under study. Steinman and Redd point out that although reinforcement from adults is an important determinant of children's behavior this reinforcement function often interacts with other situational determinants or is actually over-ridden by seemingly subtle social factors. These factors include the adult's presence, components of instructions, and implicit instructional cues resulting from the child's previous experiences in similar situations. In a similar manner, the wrok of Hill and Dweck suggests that while the effects of positive versus negative adult feedback and success versus failure are important per se, their influence is modified or actually changed depending on the child's previous hisotry with such experiences, his interpretation of such events, and specific social aspects of such experiences. All of the investigators emphasize the importance of considering the complex social milieu of the situation when analyzing the role of adult social reinforcement with children.

The four papers also stress both the reinforcement or motivational aspects and the interpretational or cognitive aspects of social cue functioning, and how these two broad kinds of factors interact to determine the effects of a given social cue. Steinman, for example, shows pervasive effects of implicit instructional control even when the child is aware of the overt reinforcement contingencies and realizes that some imitative responses are never reinforced. Here awareness of reinforcement contingencies is not sufficient to control behavior. Dweck, on the other hand, shows that helpless children will come to persist at difficult tasks if they are trained to reinterpret more appropriately possible reasons for their failure. Here success per se is not sufficent to

change children's achievement strivings. This emphasis on both informational and reinforcement properties of social cues is also found in Redd and Hill's research on the effects of adult preferences and the adult's evaluation or failure to evaluate children's choices and problem solving.

The theory and research reported here, then, represents a new and systematic attack on social phenomena that have been widely studied but not well understood. The research is beginning to clarify the nature, basis, and generality of complex social cues that influence children's behavior. It is expected that collaborative research of this nature will increase the precision and confidence with which we can predict and change the effects of social cues that are so critical in children's development and functioning.

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IMPLICIT INSTRUCTIONS AND SOCIAL INFLUENCE IN "GENERALIZED IMITATION" AND COMPARABLE NONIMITATIVE SITUATIONS[1]

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Differential reinforcement is often used as a central explanatory principle to account for the development and maintenance of discriminative behavior. Presumably, responses that result in reinforcing consequences are developed and maintained, while responses that result in neutral consequences remain unaffected or are decreased.

Although it is well documented, both in basic research and in applied research, that differential reinforcement procedures are, indeed, effective in creating and maintaining differential behavior, there also are exceptions in the literature in which the systematic and precise use of differential reinforcement has failed repeatedly to produce the differential behavior expected. One such set of exceptions has been the research on "generalized imitation."

"Generalized imitation" refers to the continued imitation of unreinforced responses when other responses are maintained by reinforcement. In other words, generalized imitation is characterized by persistent nondifferential behavior, even though consistent and repeated differential reinforcement is judiciously applied.

Since its initial demonstration by Baer and Sherman (1964), many studies have replicated the generalized imitation effect, using a variety of response classes, situations, and procedural variations, and investigating children of various ages, clinical classifications, and other demographic characteristics.

Recently, numerous studies have attempted to identify the variables responsible for the nondifferential responding characteristic of generalized imitation. The evidence to date suggests that generalized imitation is a function of the particular discrimination procedures used in such research (Peterson, 1968; Steinman, 1970a, 1970b; Bandura & Barab, 1971; Bufford, 1971; Steinman & Boyce, 1971), the social context in which the imitative behavior is performed (Waxler & Yarrow, 1970; Peterson, Merwin, Moyer, & Whitehurst, 1971; Peterson & Whitehurst, 1971; Steinman, 1971), and the nature of the explicit and implicit instructions under which the child is operating (Burgess, Burgess, & Esveldt, 1970; Steinman, 1970a, 1970b, 1971; Bufford, 1971; Martin, 1971, 1972; Wilcox, Meddock, & Steinman, 1973).

Within these studies, and others to be described later, there also is abundant evidence to support the conclusion that generalized imitation is not simply a learning deficit, as has been suggested repeatedly by Bandura and his colleagues (Bandura, 1968; 1969; Bandura & Barab, 1971). Research manipulating discrimination procedures, instructions, the social context, and recognition tasks have shown that the child may clearly recognize the contingencies associated with the various responses being modeled and yet, under the procedures which typify generalized imitation studies, the child will respond nondifferentially to all responses modeled (cf. Steinman, 1971). Thus, having learned the explicit contingencies associated with each response being modeled may be necessary for discriminative imitation, but it is not sufficient to produce it.

Instead of indicating that generalized imitation results from discrimination-learning failures, there is evidence from several sources to suggest that subtle, but remarkably powerful, social and instructional influences are operating within the procedures to create and maintain the nondifferential behavior observed.

In most generalized imitation research, the experimenter models each response sequentially, with the modeling of each response constituting a trial. After a response is modeled, an interval is provided during which the child may or may not respond by imitating the modeled response. Imitating some responses consistently produces reinforcement, whereas imitating other responses consistently does not. Often, the modeling of each response is preceded by a verbal instruction such as, "Do this," or, "Say"--though in some studies these instructions, or ones comparable to them, occur only at the beginning of the first session.

It could be argued that these procedures create social demands which are likely to produce imitative behavior, even if the child knows that the particular response being imitated will not result in reinforcement. The discrete-trial, sequential procedures typically used, require that the child withhold responding or respond incorrectly in order to demonstrate discriminative imitation. However, the explicit and implicit instructions embedded within the procedures also create potential social consequences for failing to respond. To not respond under these conditions, the child must disobey an instruction, and it simply may be more aversive for him to disobey than to respond on otherwise "unreinforced" trials.

The research to be described here is relevant to this analysis of generalized imitation and to several parameters that it suggests: For one, it is relevant to the role of explicit and implicit instructions in generalized imitation; secondly, to the generality of the effect to other nonimitative behavioral situations and, third, to the effect of specific histories on such imitative and nonimitative behavior. In addition, the research provides further evidence concerning the relative merits of a social control analysis of generalized imitation in contrast with the discrimination-failure analysis suggested by Bandura.

The first study to be described was conducted in collaboration with Rodger Bufford. The purpose of the study was to examine the role of verbal instructions in generalized imitation. As was pointed out earlier, most investigations of generalized imitation have either used a "Do this" instruction before each response is modeled or have used something comparable to the "Do this" instruction at least in the early stages of the experiment. One purpose of the present study was to compare these two instructional priming procedures.

Eight first-grade girls served as subjects. Only two responses were modeled--one response which was reinforced if imitated (which will be referred to as an S^D response), and one response which was not reinforced whether imitated or not (which will be called an S-delta response). A token-reinforcement system was used, with a predetermined number of tokens necessary for the child to earn a preselected toy.

In each session, each of the two responses was modeled 15 times in random succession with a 10-second intertrial interval separating the modeling of each response.

At the beginning of the first session, and <u>only</u> in the first session, two <u>different</u> responses were modeled. For four of the eight children, a "Do this" instruction preceded the modeling of these two initial responses and the instruction never was repeated thereafter. For the other four children, the "Do this" instruction continued to precede the modeling of every response throughout the study.

These conditions were operative for 10 sessions and the results of these manipulations can be seen in the first 10 data points of each graph in Figure 1. The four children receiving the "Do this" instruction before each trial are on the left of the figure; the four children who received the "Do this"

instruction only in the first session, are on the right. Unfortunately, Subject 8 no longer was available after Session 6.

Insert Figure 1 About Here

As can be seen in the figure, none of the eight children developed discriminative imitation. Both the reinforced and the unreinforced responses were imitated almost every time they were modeled throughout the 10 sessions, regardless of whether the "Do this" instruction preceded each response or was eliminated.

In Sessions 11, 15, and 18, another instructional manipulation was attempted. The child was brought from her classroom by another experimenter to a room adjacent to the usual experimental room. The child was told that their regular experimenter was busy with another child right now but that she could watch the other child and the experimenter through a window until the experimenter was ready for her. The second experimenter stayed in the room with the child and watched along with her. For four of the children the scene observed was a confederate child performing nondifferentially on the same two responses used for the observing child. For the other three subjects the scene observed was a confederate child performing differentially on the same two responses. Following the fourteenth observed trial the confederate child turned in her tokens, received her prize, and then the subject began her session.

The effect of these observational manipulations are shown in the second segment of each graph in Figure 1 (Sessions 11 to 20). The triangles at the bottom of each graph indicate sessions preceded by an observation period. The "DM" above three of the graphs indicates children who observed a differentially responding confederate; the "GM" indicates the observation of a "generalizing" confederate.

As the data indicate, all seven children, including the three who observed a differentially imitating confederate, failed to develop differential imitation themselves. Generalized imitation was maintained by all seven subjects.

In a third set of manipulations, each child again observed the confederate's performance before performing herself, but in addition the experimenter, who was sitting with the child during the observation period, added a commentary describing the confederate's behavior. For example, the experimenter would say, "She did that one, and she got a token," or, "She did that one, and she didn't get a token," or, "She didn't do that one." The subject then performed in her session as usual.

The results of these manipulations are shown in the third segment of Figure 1 (Sessions 21 to 24). As can be seen, the commentary, which was hoped to focus the attention of the subject on the confederate's behavior and on the consequences of that behavior, had little or no effect.

A final set of manipulations also involved a commentary while the subject watched the confederate. The content of this commentary, however, was aimed at trying to suggest to the subject what she was supposed to do in the experiment. For example, the experimenter said, "Good, she did that one; she's supposed to," or, "Oh no, she did that one; she's not supposed to," or, "Good, she didn't do that one; she's not supposed to." The subject then performed in her session as usual.

The results of this last commentary and observational technique are summarized in the final sessions of Figure 1. Five of the subjects (S-3, S-4, S-5, S-6, and S-7) clearly continued to imitate both responses indiscriminatively even after this extreme instructional prime. Only Subject 2's behavior was markedly affected. By the end of the experiment, Subject 2 finally developed consistent differential imitation.

The remarkable tenacity of generalized imitation in the preceding experiment, despite the absence of verbal instructions to imitate following the first session for half the children and despite the several observational and verbal prompting procedures used in the latter stages of the study, led to another experiment which was designed to determine whether generalized imitation would occur in the total absence of verbal instructions.

In this study, verbal instructions were eliminated entirely. Instead, four girls from a first-grade class were given the opportunity to observe a child-confederate who was performing imitatively.

The experimenter first modeled one or two responses while facing the confederate, which she previously had been instructed to imitate. Then the experimenter faced the subject and modeled one or two responses. This procedure continued until each child had imitated 20 responses and then the session was ended. Every imitative response of both children in the first session was reinforced with a tradable token.

In all sessions following the first one, the subject performed without the confederate present and a new set of 10 S^D and 5 S-delta responses was used. In each session, each response was modeled three times, for a total of 45 responses per session.

The results are summarized in Figure 2. No differential imitation developed. For the first 12 sessions, all four children imitated almost every response modeled regardless of whether the particular response was reinforced if imitated. Thus, although there were no verbal instructions in the experiment, generalized imitation still resulted and was maintained.

Insert Figure 2 About Here

Before the thirteenth session, the children observed a confederate performing differentially on the task. As in the preceding experiment, this observation had no effect on the subsequent behavior of the subjects--all four children continued to imitate nondifferentially.

In the final session of the study (Session 22), the children were given a recognition test to determine whether they could identify the contingencies associated with the 15 responses being modeled. Each response was modeled once in a random order and the child was instructed to tell the experimenter whether the particular response modeled previously had been reinforced or not when imitated. Subjects 1 and 4 correctly identified the contingencies associated with all 15 responses. Subject 2 correctly identified 14 of the 15. And, Subject 3 correctly identified 12 of the 15.

Following the recognition test procedures, the imitation procedures were resumed. When resumed, all four children continued to imitate every response modeled.

The data of the last two experiments demonstrate that verbal instructions are not necessary to produce generalized imitation. The data also indicate that generalized imitation will occur even when the children clearly can identify the consequences associated with the various responses being modeled. One puzzling result, however, was the complete ineffectiveness of the observational procedures used when the observation was of a differentially performing model. If the observation of a differentially performing model could be considered to be a nonverbal, implicit instruction, one should expect the observation of a confederate performing discriminatively to have some effect on the children's behavior. However, it did not.

To examine this result, two additional experiments were conducted (cf. Wilcox, Meddock, & Steinman, 1973). One purpose of the studies was to investi-

gate the finding that the observation of a differentially performing model may be insufficient to produce differential responding. A second purpose was to examine the generality of the "generalized imitation" effect by using procedures comparable to those used in generalized imitation studies, but on a task involving no imitative behavior.

In these experiments, a visual discrimination apparatus was used. A triangle or a circle was back-projected on a plastic response panel. Pressing the panel activated automated programming and recording equipment and delivered reinforcement in the form of a light on a reinforcement box having 50 lights on its front side. Lights on the reinforcement box cumulated until enough lights had been obtained to earn a preselected toy.

Four 4½-year-old boys served as subjects. For two of the boys the triangle served as the S^D and the circle served as the S-delta. For the other two boys, the functions of the stimuli were reversed. The stimuli were presented singly, in a random order, for 50 trials in each session. Each stimulus was present for 5 seconds, followed by a 3-second interval before the next stimulus in the random series became available.

In the first phase of the study, the children performed for 9 or 11 sessions under these procedures. The results were that the children responded to both stimuli indiscriminatively in a manner characteristic of generalized imitation.

All four children were then given the opportunity to observe an adult model who responded only to the stimulus that was the S^D for the child and never to the child's S-delta. The adult model performed in this differential manner for a total of 20 trials and then the child began his session as usual.

Observing the adult model performing differentially had an effect on only one of the four children. The others continued to respond indiscriminatively

even after the observational procedure was repeated preceding a subsequent session.

In all three of the preceding experiments, which attempted to produce differential behavior by having the child observe a differentially responding confederate, the observational procedure typically failed to be effective for more than an occasional subject. However, in all three studies, the observational procedure was not used until the child had had a considerable history of responding nondifferentially in the experiment.

To determine whether this history of nondifferential responding might be responsible for the results obtained, another experiment was conducted.

Four more boys obtained from the same preschool class as in the last study served as subjects. The apparatus and procedures were identical to those used with the first four boys. However, the observation of the differentially performing adult was made available before the children began the first session of the experiment.

The results are shown in the first two sessions of Figure 3. All four boys responded differentially starting with the first session when the observational procedures were used initially. Reversing the response consequences, starting in Session 3, produced a corresponding reversal in behavior. That is, when the contingencies were reversed, the boys stopped responding to the previous S^D and began responding to the current S^D.

Insert Figure 3 About Here

Before the final session of the study, the adult-confederate returned and again modeled responding for 20 trials. This time, however, the confederate

responded to both stimuli nondifferentially. For one boy (S-7), observing the nondifferential model had no effect. He continued to respond differentially. For two other subjects (S-5 and S-6), approximately half of the S-deltas now were responded to. For the last subject (S-8), observing the nondifferentiating adult model was effective. That is, Subject 8 stopped responding differentially and, like the model, began responding nondifferentially.

The preceding studies strongly suggest that the initial priming procedures used in generalized imitation studies are extremely important in determining the nature of the behavior obtained. Whether the procedures involve explicit verbal instructions or more implicit observational instructions, and whether the task is an imitative one or not, the effect of the initial priming procedures may create a durable pattern of responding that is very difficult to disrupt. The fact that the child is differentially reinforced for literally hundreds of trials following these initial primes, may have no effect on decreasing the frequency with which he performs the otherwise "unreinforced" responses.

The studies also suggest that the specific timing of these instructional procedures may be critical. That is, the same verbal or observational manipulation may have a dramatic effect or no effect, depending upon whether the manipulation occurs early or late in the experiment. (This might explain why various attempts to eliminate generalized imitation through the use of DRO procedures, extinction, or contingent time-out have not been uniformly successful. Perhaps, if such procedures were used from the beginning of the experiment, they would have a more profound and dependable effect.)

Although the preceding studies do demonstrate that the early observation of a differentially responding model may be sufficient to promote differential imitation by the observing child, they do not indicate the source of this effect.

The confederates observed by the children not only were imitating differentially, they also were being differentially reinforced and were engaged in the same behavior that the observing child subsequently was to have modeled for him. Which of these variables may be critical to the results obtained, remains, unanalyzed. Therefore, to determine whether the observation of a differentially performing model, per se, would be sufficient to produce differential imitation by the child, another experiment was conducted.

In the experiment, 56 first-grade children performed in a 2x2x2 group-factorial design. Four female graduate students served as experimenters and confederates. The design and the conditions operative in the eight groups are summarized in Figure 4. As one factor in the study, the confederates either imitated the experimenter differentially or nondifferentially (i.e., generalized). That is, the confederate either imitated one or both of the two responses modeled by the experimenter. Secondly, the experimenter either modeled the same two responses to the confederate that she modeled for the child, or the experimenter modeled two different responses to the confederate than the two responses modeled for the child. Finally, as a third factor, the confederates either were differentially reinforced for their imitative behavior or were not reinforced at all.

Insert Figure 4 About Here

It should be noted that all manipulations involved the activities and contingencies of the confederate. All children in the eight groups received the same contingencies. That is, they all were differentially reinforced for imitating one of the two responses modeled by the experimenter even though their observations of the confederate differed. No verbal instructions were given.

Each child performed for two sessions. In each session, the experimenter first turned toward the confederate and modeled for two trials. The experimenter then turned toward the child and proceeded for two trials (one S^D and one S-delta). Pairs of trials alternated in this manner until both the confederate and the child each had received 30 trials in each session.

Not a single one of the 28 children in the four groups performing with the generalizing confederate developed differential imitation. Indeed, there was no trend toward differential behavior for any of these 28 children either within or between sessions.

In the four groups performing with the differentiating confederate, the extent to which differential imitation developed closely paralleled the extent to which the conditions operative for the confederate were like the conditions operative for the child. For example, six of the seven children performing in Group 1 developed perfect or near perfect differential imitation, while none of the children in Group 4 developed differential imitation. Two children developed differential imitation in Group 2, and two showed a trend in that direction in Group 3.

An analysis of variance indicated that the imitation of S^D and S-delta responses differed significantly as a function of the differentiating or generalizing confederate ($F=13.30$, $1/48$, $p < .001$) and as a function of whether the confederate's responses were the same or different than those modeled for the child ($F=12.89$, $1/48$, $p < .001$). The interaction between these two factors also was significant ($F=15.03$, $1/48$, $p < .001$). Thus, simply observing differential imitation, per se, in the situation was not sufficient by itself to produce differential imitation by the observing child.

The effect of the presence or absence of reinforcement to the confederate was not significant statistically ($F=3.07$, 1/48, $p=.09$), but it did interact significantly with the effect of the confederate's differentiating or generalizing behavior ($F=4.64$, 1/48, $p=.04$). In other words, there wasn't a statistically reliable vicarious reinforcement effect unless the confederate also was performing differentially.

At the end of the second session, the 56 children were given a recognition test. The experimenter modeled the S^D and S-delta response five times each in a random order, and asked the child to tell her whether the response just modeled had produced reinforcement in the past. Eight of the children seemingly did not understand the instruction or at least refused to answer on any of the 10 trials. Of the remaining 48 children, 23 correctly identified the contingencies on all 10 trials. Of those 23, 13 had been imitating nondifferentially throughout the two sessions, again demonstrating that being able to discriminate contingencies may be <u>necessary</u> for differential imitation, but not <u>sufficient</u>.

Taken together, the data of the several experiments described strongly suggest that generalized imitation, as studied under the successive-discrimination procedures common to this area, is largely a function of the particular priming procedures used to generate the imitative behavior. Whether the child is explicitly instructed verbally to, "Do this," may not be necessary to produce generalized imitation. Indeed, much more subtle instructions can have the same effect. It seems clear, however, that without early unambiguous verbal, observational, or procedural instructions to do otherwise, generalized responding appears to be the vastly more dominant mode of action of these children than is differential responding, regardless of how frequently and judiciously the children are differentially reinforced.

It also seems reasonable to suggest from the data that generalized imitation is only one subset of a much larger class of behaviors. The nondifferential behavior generated is not limited specifically to imitative behavior. Only one study was presented here to demonstrate this, but we have several others, and Jerry Martin's research clearly supports this notion (Martin, 1971, 1972).

In conclusion, as the author has proposed elsewhere (Steinman, 1970a, 1970b, 1971), it might be beneficial to view the generalized imitation situation as one in which two contingency systems are operating simultaneously. One system involves the explicit contingencies being manipulated by the experimenter, contingent upon S^D and S-delta responding. The second, less explicit contingency system derives from the child's history of reinforcement and punishment regarding compliance with social demands. If, in the absence of a sufficiently reinforcing alternative response, and in the presence of a sufficiently powerful observer, the child assumes that he is supposed to respond, he is likely to do so since, by doing so, he may avoid potential disapproval for not responding or maintain potential approval for responding.

If this analysis is correct, then the manipulation of at least four parameters should affect the probability of obtaining generalized responding under these conditions: First, generalized responding should be affected by the manipulation of the child's assessment of the situational demands. This can be accomplished through the use of direct verbal instructions (Steinman, 1970a, 1970b; Bufford, 1971; Martin, 1971, 1972); or by having the child observe others early in the experiment performing on the task differentially (Wilcox, Meddock, & Steinman, 1973), or, perhaps, by giving the child a preceding experimental history in which differential responding in situations progressively like the generalized imitation situation is developed (Theobald, 1971). Second, generalized responding should be affected by the specific social characteristics of the

individual giving the instructions and of those present when the child performs (cf. Hill, 1973; Redd, 1973b). In short, the stronger the potential approval or disapproval, the greater the likelihood of generalized responding, given that the child believes that that is what is expected of him and given that social consequences are important to him. Third, as an extension of the last point, generalized responding should be reduced to the extent that the social control existing in the situation is reduced. Thus, by having the child perform alone, the social setting conditions are modified in such a way as to reduce the threat of disapproval for noncompliance and the potential approval for compliance (Meddock, Parsons, & Hill, 1971; Peterson, Merwin, Moyer, & Whitehurst, 1971; Peterson & Whitehurst, 1971; Redd, 1973a; Redd & Wheeler, 1973; Redd & Winston, 1973). Therefore, the manipulated differential reinforcement is more likely to become the dominant controlling system. Finally, generalized responding should be reduced to the extent that the differential reinforcement system is modified to include forms of punishment for performing S-delta responses (Lite, 1973). To the extent that the strength of the punishment added exceeds the social demands to respond created by the instructions and the continued surveillance, discriminative responding should result.

Footnotes

[1]The research described in this paper was supported in part by National Institute of Child Health and Human Development Grants HD-03859 and HD-00244 and by National Institutes of Mental Health Grant MH-05089.

[2]The author wishes to thank Rodger Bufford, Benedict Cooley, Barbara Wilcox, and Terry Meddock, who collaborated with him on the research described in this paper.

Figure Captions

Figure 1: Percent of reinforced (solid circles) and unreinforced (open circles) responses imitated by each of the eight subjects in each session of the study. "DM" refers to the observation of a differentially imitating confederate; "GM" refers to the observation of a nondifferentially imitating confederate. Triangles indicate sessions preceded by the observation of a confederate.

Figure 2: Percent of reinforced (solid circles) and unreinforced (open circles) responses imitated by each subject in each session. Session 13 was preceded by the observation of a differentially responding confederate. Session 22 was preceded by a contingency-recognition test.

Figure 3: Percentage of responding to S^D and S-delta stimulus presentations by each of the four children. Solid circles indicate the percentage of S^D responses performed in each session; open circles indicate the percentage of S-delta responses performed. The letters at the top of each graph indicate treatment conditions: "DM" refers to the observation of a differentially performing confederate; "R" refers to a reversal of reinforcing contingencies, and "NDM" refers to the observation of a nondifferentially performing confederate.

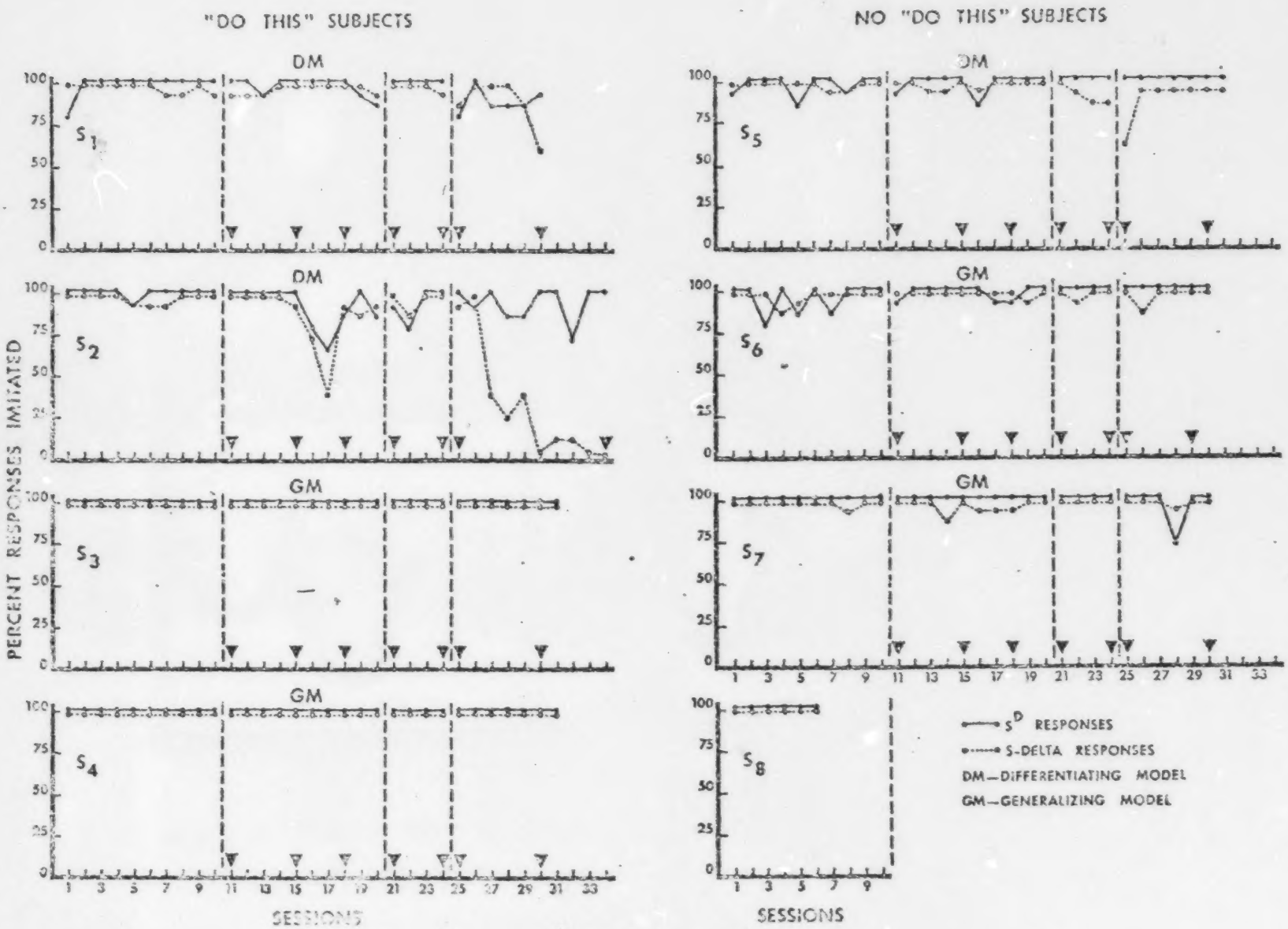
"DO THIS" SUBJECTS
NO "DO THIS" SUBJECTS
DM
GM
S_1
S_2
S_3
S_4
S_5
S_6
S_7
S_8
PERCENT RESPONSES IMITATED
SESSIONS
S^D RESPONSES
S-DELTA RESPONSES
DM—DIFFERENTIATING MODEL
GM—GENERALIZING MODEL

FIGURE 1

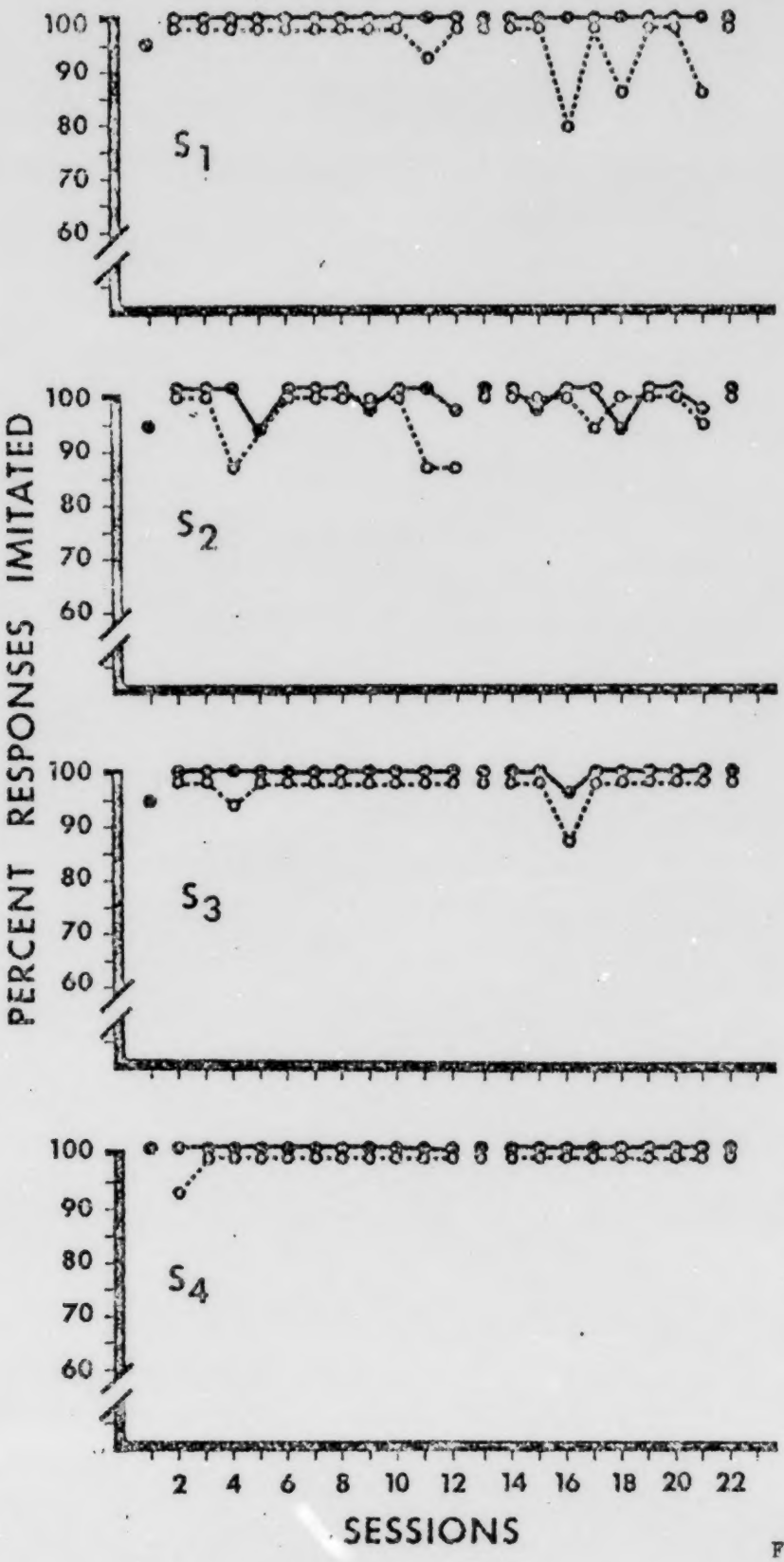
PERCENT RESPONSES IMITATED
100
90
80
70
60
S1
S2
S3
S4
2 4 6 8 10 12 14 16 18 20 22
SESSIONS

FIGURE 2

FIGURE 3

PER CENT RESPONSE
100
80
60
40
20
0
DM
R
NDM
S-7
1 2 3 4 5 6
SESSIONS
PER CENT RESPONSE
100
80
60
40
20
0
DM
R
NDM
S-8
1 2 3 4 5
SESSIONS
PER CENT RESPONSE
100
80
60
40
20
0
DM
R
NDM
S-5
1 2 3 4 5 6
SESSIONS
PER CENT RESPONSE
100
80
60
40
20
0
DM
R
NDM
S-6
1 2 3 4 5 6 7 8
SESSIONS

Differentiating Confederate				Generalizing Confederate			
Confederate's Responses							
Same		Different		Same		Different	
Confederate Reinforced							
Yes	No	Yes	No	Yes	No	Yes	No
Groups							
1	2	3	4	5	6	7	8

FIGURE 4

THE EFFECTS OF ADULT PRESENCE AND STATED PREFERENCE ON THE REINFORCEMENT CONTROL OF CHILDREN'S BEHAVIOR[1]

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Operant conditioning procedures have been employed extensively to modify both social and academic behaviors in children (Harris, Wolf, & Baer, 1964; Wolf, Risley, & Mees, 1964; Bijou, Birnhrauer, Kiddler, & Tague, 1966), and many theorists have used operant concepts when discussing a variety of issues and problems (Skinner, 1963, 1971; Bijou & Baer, 1965; Krasner & Ullmann, 1967). Changes in behavior associated with these techniques have typically been attributed to the delivery of praise, food, money, etc., immediately following a particular response. However, recent experimental work has indicated that the delivery of contingent positive reinforcers may not be the only variable accounting for the changes in behavior associated with operant conditioning which involves social interaction. Peterson and Whitehurst (1971), as well as Meddock, Parsons, and Hill (1971), found that the presence of an adult experimenter facilitated responding even though the adult's presence was not a necessary condition for reinforcement. Reinforcers were delivered automatically and were presented regardless of the adult's presence. Yet, when the adult experimenter was out of the room, the child's rate of responding decreased.

Steinman (1970a, 1970b) has pointed out two different variables that operate simultaneously in experimental settings involving social interaction on part of an adult experimenter and a child: subjects often appear to respond to the social demands of the experimental situation as well as to the reinforcement contingencies. In these settings, when an adult is present and providing de facto

surveillance, the child complies. Presumably, the presence of an adult is discriminative for certain consequences associated with compliance and non-compliance. Through past experience most children have learned to comply with an adult's expectations and wishes and have become sensitized to many forms of subtle communication. Thus, the adult's presence and the concomitant network of social cues come to function as discriminative stimuli which exert control over the child's behavior. As we will see, this control may serve to either heighten or attenuate the apparent effectiveness of subsequent reinforcement.

Another factor that must be considered in the study of adult social control is the manner or style of the adult's social interaction with the child. The adult who is cold and aloof with a child is providing cues that are quite different from those provided by a warm and friendly adult. Walters and Ray (1960) found that children were more responsive to subsequent adult social reinforcement when the adult gave initial instructions in an aloof, brief, and unfriendly manner than when he was warm and friendly when giving the instructions. Thus the adult's manner of delivery may be another source of differential control.

Given the power of such setting factors to influence experimental results, it becomes difficult to determine the actual source of control in many studies in which the procedures involve social interaction between subject and experimenter. As Bijou and Baer (1966) have pointed out, it is a question of whether the child is controlled by the reinforcers that are available or by the adult experimenter's remarks. In other words, is it the reinforcers that the child receives or the adult's instructions to do as well as he can that are responsible for subsequent behavior?

Both Orne (1962) and Rosenthal (1966) have recognized the importance of considering the social milieu of the psychological experiment when analyzing

experimental results. Their work has been directed towards research involving behavioral situations that are generally considered to be more complex than those studied in operant conditioning research. The work that will be discussed here suggests that the social milieu of the experimental setting is also important in operant conditioning research. Thus adult social control of children's behavior is not only an important factor in the socialization process, but is also a crucial methodological issue.

The research that will be summarized is taken from a series of three studies on the effects of adult's presence, instructions, and comments on children's operant behavior. In order to ascertain the relative contribution of these social cues to the control that is usually achieved with operant procedures, each cue or demand was pitted against contingencies of material reinforcement. That is, the social demands ran counter to the reinforcement contingencies. In one study, for example, the child was instructed to engage in one behavior and differentially reinforced for another, incompatible behavior; while in a second study the adult stated a preference for a response that earned a smaller amount of reinforcement than another available response.

All of the studies involved a child playing simple, two-choice discrimination games while an adult sat alongside and watched. The first two studies used a marble dropping apparatus and the third a lever pull game. With the marble dropping game, daily sessions consisted of 60 trials. On 36 of these trials a single colored light was presented and on the other 24 trials two different colored lights were presented. Each of the lights was associated with different contingencies of reinforcement. For example, in the first study, one color was paired with the delivery of two tokens (high-magnitude reinforcement) and a second color with one token (low-magnitude reinforcement). These responses are referred to as high- and low-magnitude responses, respectively. During

"choice" trials both holes were illuminated, each with a different colored light. As soon as a marble was dropped both lights were extinguished and tokens were dispensed according to the color of the hole selected. Choice trials were interspersed among single color trials such that an equal number of trials of each color immediately preceded choice trials. At the end of each session the subject traded his tokens for pennies with an assistant.

The first study (Redd, 1973) investigated the effects of social factors associated with adult presence on behavior change obtained with operant conditioning techniques. Specifically, it concerned the role of adult expectations or preferences in controlling children's operant behavior. What happens when the adult's response preference is counter to the behavior that is being differentially reinforced? Will a child choose to engage in a behavior that an adult prefers or likes for a lower magnitude of reinforcement rather than engage in a behavior that earns a greater amount of reinforcement but is not preferred by the adult?

Four normal first-grade children and four institutionalized mentally-retarded adolescents served as subjects. After the child had developed a preference for the high-magnitude choice (defined as at least 19 out of 24 high-magnitude choices for two successive sessions), the adult stated a preference for the low-magnitude response (the response that paid one token), saying:

> "I like it when you put it in the _____-colored hole (low-magnitude reinforcement). I don't like it when you put it in the _____-colored hole (high-magnitude reinforcement)."

If the child asked any questions the adult said that he just liked that color.

When the experimenter stated his preference, six of the eight subjects immediately switched to the low-magnitude choice. This responding was stable

across two sessions although the experimenter never repeated his preference statement.

In order to investigate the role of the adult's presence in this control, the adult was absent from the room for two successive sessions; the subject then played alone. Only two of the eight subjects switched back to the high-magnitude response when the adult left the room. The other subjects continued making low-magnitude choices when the experimenter was absent.

Figure 1 presents cumulative records for three of the first-grade children.

Insert Figure 1 about here

These results are representative of the other five subjects. Only one of these subjects, S-5, showed a clear "adult-absent" effect. As soon as the adult experimenter left the room during session 6, S-5 returned to high-magnitude choices. When the experimenter returned during the next session, S-5 switched to low-magnitude choices.

An unusual pattern of responding was generated by one of the mentally-retarded adolescents. As soon as the adult stated his preference this subject switched to low-magnitude choices and continued making low-magnitude choices when the experimenter left. This compliant pattern of responding continued for 18 sessions even though the experimenter never restated his preference or ever appeared on the scene. Moreover, when new colors were presented this subject continued to make low-magnitude choices, although the experimenter had made no new preference statement regarding the new colors. It appears that this subject generalized the experimenter's preference for the first low-magnitude color to all colors that were paired with low-magnitude reinforcement.

This subject can be considered to be exceptionally compliant, given the other data for the other subjects.

One might expect from Zigler's research (Zigler, Hodgden, & Stevenson, 1958; Zigler, 1963, 1964) that the institutionalized, mentally-retarded subjects would be more responsive to the adult's preference statements, but this was not the case. With the exception of the one mentally-retarded subject discussed above who was unusually compliant, there was no clear difference between the normal and mentally-retarded subjects.

These findings have a number of implications regarding the experimenter-bias effect and the role of instructional variables in operant conditioning research with children. The experimenter's preference statement proved to be a potent variable: it eliminated behavior that presumably had been generated by the reinforcement contingencies. Because the adult's stated preferences ran counter to the behavior that was differentially reinforced, two sources of control could be identified. However, in experimental situations in which t he experimenter's wishes or expectations coincide with the reinforced behavior, it is difficult to determine the actual source of control. For example, if the experimenter were to indicate to the child that the reinforcer is good, that he wants the child to earn as many reinforcer as possible, or that he prefers a particular response, then the apparent effectiveness of the reinforcer might be increased. If, on the other hand, the message is that the reinforcer is worthless or disliked by the adult, then reinforcer effectiveness might be diminished. Even when the experimenter makes no overt expression of his preference, preferences or expectations may, nevertheless, be quite effectively communicated and thus affect the subject's behavior. This issue is made even more complex by the fact that children differ in the responsiveness to these cues.

The second study (Redd & Wheeler, 1973) investigated the role of instructions in operant conditioning research with children. This experiment was similar to the first study except that the adult experimenter gave direct instructions as to what response to emit on choice trials. The effects of the following variables were studied: (1) experimenter instructions to choose a response that earned worthless tokens, (2) experimenter presence after these instructions were given, and (3) the generality of instructional control across adults.

During daily sessions each of four first-grade boys played the marble dropping game. The same procedure of interspersing single-color and two-choice trials was used. One choice paid tokens that were later traded for pennies while the other choice paid worthless tokens that the subject had to throw away without trading them. After a child developed a preference for choices that were backed up with pennies, the experimenter gave instructions to try to get as many worthless tokens as possible. During the next session the adult repeated his instructions and left the room in order to study adult absence on instructional control. If the child deviated while the adult was absent, then during the next session the experimenter remained in the room. After this phase was completed new colors were added with the same worthless and backed-up reinforcement. A new experimenter was introduced who gave daily instructions for the remainder of the study. In order to magnify the discriminability of the adults, the two experimenters differed in age, sex, and presumed status. One experimenter was a male professional introduced as "Doctor Redd," whereas the other was an undergraduate female introduced as "Shelley."

Figures 2 and 3 present results for two of the children and are representative

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Insert Figures 2 and 3 about here

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of the other children's performance. S-1's choice for backed-up tokens was unaffected by E-1's ("Shelley," female assistant) instructions (Fig. 2 new inst., E-1 stays), but when E-2 ("Dr. Redd") gave the same instructions with new colors, S-1 complied (Fig. 2 new inst., E-2 stays). When E-2 left the room S-1 returned to his previous backed-up choices (Fig. 2 new inst., E-2 leaves).

S-2, on the other hand, was controlled by both experimenters' instructions but, like S-1, only as long as we were present (Fig. 3, new inst., E stays). When either experimenter left, S-2 returned to his previous pattern of responding (Fig. 3, new inst., E leaves). Results for the two other subjects were similar to those presented here. One of the subjects immediately complied with both adults' instructions as long as the adult was present. When the adult left the child returned to backed-up choices. The fourth subject was more like S-1: he complied with the E-2's instructions and ignored E-1's. This subject also showed the "adult-absent" effect: he stopped complying when the male experimenter was out of the room.

Control was not limited to one particular adult; both adults affected an abrupt change in responding. Although one adult appeared to be somewhat more effective with two subjects, any conclusions regarding the reason for differences in effectiveness of the two experimenters or the reliability of the phenomenon seem premature. The inclusion of two experimenters in the present experiment was for the purpose of examing the generality of the effect across adults, not as a means of evaluating relative social effectiveness of male professionals and female undergraduates. However, generalizing from the results from the area of social reinforcement (Stevenson, 1961; McCoy & Zigler, 1965; Allen, Dubanoski, & Stevenson, 1966; Sgan, 1967), it would not be surprising to discover that age, sex, and familiarity of the experimenter are important determinants of the effects of instructions.

If adult presence is thought of as an additional demand to comply, then when the adult left the experimental room this implicit instruction was removed. This abrupt change in demand characteristics was clearly shown in the subjects' behavior. In all instances in which the adult's instructions controlled responding, subjects immediately stopped complying when the adult left. This unusually clear "adult-absent" effect may be accounted for by the fact that they had a history of being differentially reinforced for choosing the backed-up response and would be able to earn more pennies by not complying. That is, the children had a clear and previously reinforced alternative to the experimenter's instructions and readily returned to their initial choice in his absence.

This study suggests that the instructions used in many psychological experiments, in which the subject is urged to do as well as he can, may exert greater control than the contingencies of reinforcement that are typically manipulated. Since these instructions were powerful enough that subjects complied even though complying meant that they had to forfeit the opportunity to earn monetary reinforcers, one may tentatively assume that similar instructions that are concordant with reinforcement contingencies also have a powerful effect.

The powerful effect of adult's stated preferences and instructions in research with children cannot be denied. As Rosenthal (1966) has proposed, even when the adult does not state his wishes directly, other more subtle cues may nevertheless serve as effective instructions for the subject. As was pointed out earlier, the relative effectiveness of these demand characteristics may be determined by the manner in which they are delivered. Walters and Ray (1960) found that subsequent social control was enhanced if the adult initial instructions were given in a negative, unfriendly manner. Similarly, the form of an adult's reaction may determine the strength of his control. Negative evaluative feedback has been found to be generally more effective than positive feedback

(Buss & Buss, 1956; Crandall, Good, & Crandall, 1964; Spence, 1966; Paris & Cairns, 1972).

If the adult were to express his wishes by telling the child what he dislikes (i.e., by a negative preference statement) rather than by saying what he likes (i.e., by positive preference statement), the adult's control might be enhanced. The third study (Redd & Winston, 1973) investigated this possibility. Specifically, this experiment examined the relative effectiveness of positive and negative adult preference statements in controlling children's behavior. The dependent measure was the child's subsequent compliance with the adult's preference. In order to reduce the evaluative and overtly instructional components of the adults' preference statements, the comments were presented prior to the child's actual performance of the task and were made in reference to another person's behavior. This attempt to deemphasize current evaluation is similar to Hill's observational procedure to be discussed later in this report.

Three 4-year-old boys participated in daily sessions. Each session began with the subject and an adult experimenter sitting behind a soundproof, one-way vision screen and watching an assistant (a confederate) play a two-choice lever pull game. A different colored light mounted above each lever was illuminated when the lever was operable. On single-color trials, one lever was illuminated and the assistant pulled it. On choice trials that were again interspersed with single-color trials, both lights were turned on, and the assistant chose one lever. The assistant followed a prearranged sequence of trials in which both levers were pulled an equal number of times. After each response the adult made a comment to the child about the assistant's behavior, as described below. These comments were not heard by the assistant and his behavior did not vary as a function of the adult's statements.

Using an ABA reversal design, the effectiveness of positive and negative adult comments in controlling the children's behavior was compared. Each phase was repeated until stable responding was obtained.

Positive comment phase: During this phase, the adult made a positive comment (e.g., "I like it when he pulls the red one.") to the subject each time the assistant pulled one of the levers and made a neutral comment (e.g., "He pulled the blue one") each time the other lever was pulled. Neutral comments were used in order to increase the likelihood that the child would attend to both responses.

Negative comment phase: With new colors associated with each lever, the experimenter made a negative comment (e.g., "I don't like it when he pulls the green one.") when one lever was pulled and a neutral comment (e.g., "He pulled the yellow one") when the other lever was pulled.

After the assistant finished playing, he left the room; the subject and experimenter entered. The subject played the game while the adult watched and remained silent, i.e., the experimenter made no comments regarding the subject's choices.

Although the subjects differed in the degree of control exerted by these comments, negative statements exerted greater control than did positive comments. For the positive comments compliance averaged 50%, whereas for the negative comment compliance averaged 90%. For all children, negative comments yielded at least 33% greater compliance than did positive comments made during the initial and final phases. Both within and across subject replication of the effect was achieved. In two subjects, compliance with the negative preference statements was maintained over many sessions, despite the fact that no differential social or token reinforcement was given for compliance. For the third subject, negative statements remained effective in producing compliance even

though differential token reinforcement was given for noncompliance. The durability of these effects suggests the importance of such antecedant events in controlling children's behavior.

At least two factors might account for the superiority of negatively expressed preference statements. First, the child's social learning history may have involved more consistent consequences for negatively expressed preferences than for positively expressed preferences. That is, the children may have learned that negative statements are more predictive of future outcomes for compliance and noncompliance than are positive statements. Secondly, even if positive and negative comments are equally predictive of subsequent reinforcement, the strength of thos reinforcements may differ. For example, the children may have generally been more severely punished for doing what adults say they dislike than for failing to do what adults say they like. This discriminative stimulus interpretation of instructional control requires further experimental investigation before any definitive statements can be drawn regarding the origins of the superior control exerted by negatively expressed adult preferences.

Taken together, these results provide strong support for the notion that in many studies of children's behavior the reinforcement contingencies that the experimenter expressly manipulates are not the only source of control. Other variables that may appear to the experimenter to be subtle and inconsequential may, in fact, be very powerful. Indeed, these seemingly subtle variables may exert greater control over the child's behavior than the contingencies of material reinforcement. These observations do not suggest reinforcement does not work or that operant conditioning interpretations of children's behavior are incorrect. Rather, they point out the importance of considering less explicit social contingencies involved in adult-child interaction when studying children's behavior.

Footnote

[1]This research was supported by Public Health Service Grants HD 05124 and HD 04147 from the National Institute of Child Health and Human Development, and a faculty grant from the University of Illinois Research Board.

Figure Captions

Fig. 1 Cumulative high-magnitude choices for first-grade children S-5, S-6, and S-7. Numbers indicate sessions and arrows show manipulations.

Fig. 2 S-1's cumulative choices of backed-up response on successive choice trials across experimental conditions. A 45-degree line segment indicates a choice of the backed-up response and a horizontal line segment indicates a choice of the non-backed-up response.

Fig. 3 S-2's cumulative choices of backed-up response on successive choice trials across experimental conditions. A 45-degree line segment indicates a choice of the backed-up response and a horizontal line segment indicates a choice of the non-backed-up response.

Fig. 1

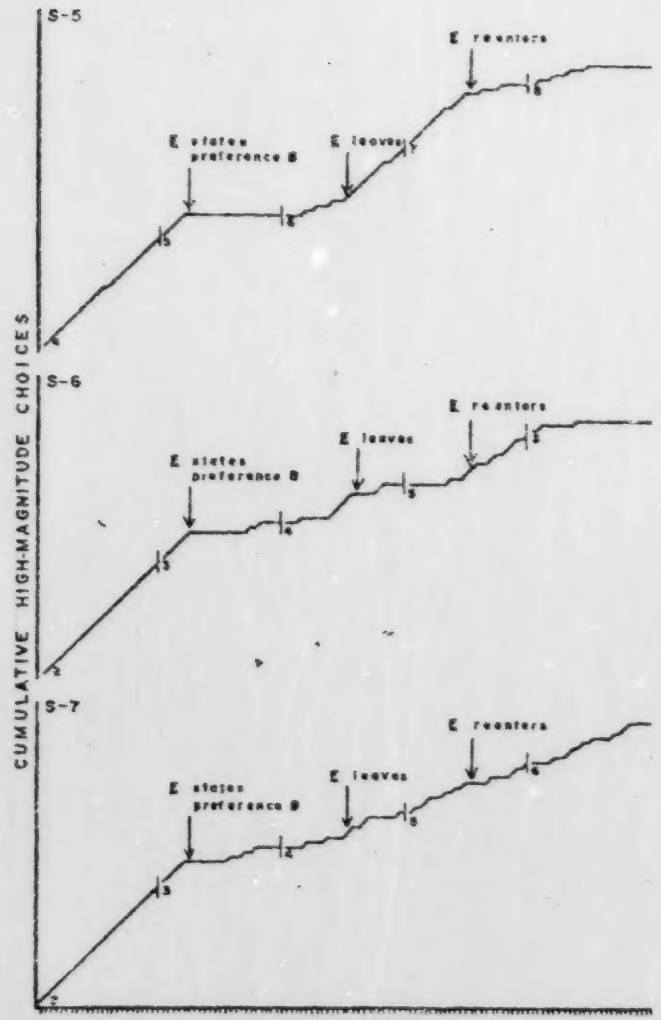


Fig. 2

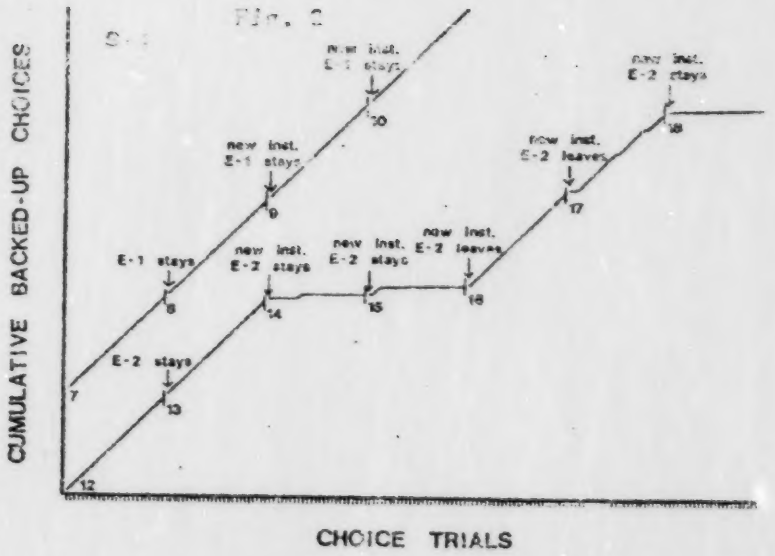
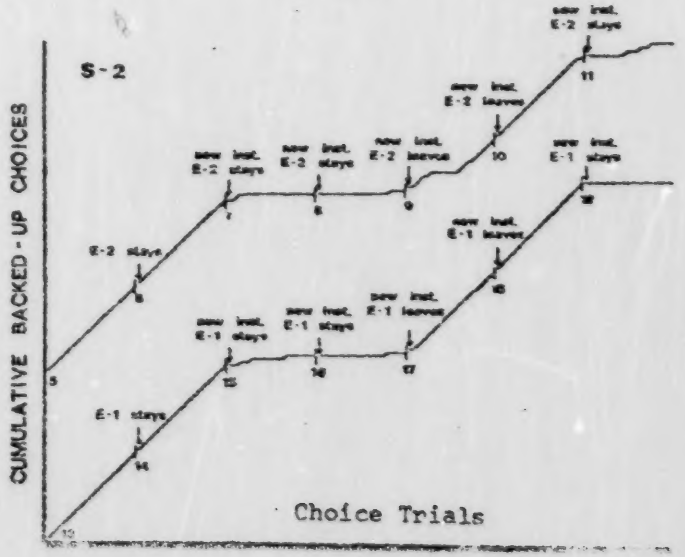


Fig. 3



Redd

INDIVIDUAL DIFFERENCES IN CHILDREN'S RESPONSE TO ADULT PRESENCE AND EVALUATIVE REACTIONS[1]

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Adult expectations for a child's behavior can be communicated in a number of verbal and non-verbal ways. The way in which these social cues affect the child's behavior depends on his prior history of social interaction, his interpretation of the situation, and his current motivation. These cues can range from the mere presence of the adult to different kinds of explicit social evaluation.

This discussion will focus on three lines of research related to the focus of this symposium. One set of studies investigates effects of an adult's presence on children's tendency to imitate adult responses with sex-type objects. Here the child's previous social reinforcement history with sex-role appropriate and inappropriate objects in the home and other settings is assumed to have led him to expect different adult reactions to his using the objects. The research investigates for possible inhibitory as well as facilitating effects of an adult's presence as a function of boys and girls differential previous experiences. A second set of studies deals with the child's interpretation of and response to non-reaction from an adult present in a quite different evaluative setting. In this case, a two-choice verbal learning task is studied in which the subject is told he is right (or wrong) on some trials but told nothing (blank reaction) on other trials. We are interested in determining how different children interpret such non-reaction, and how that interpretation affects their learning. Do children interpret blank reactions as meaning they are right, or wrong, or is the meaning of non-reaction determined by the overt evaluations being made by the adult? A final line of research examines the

effects of different kinds of social and task-inherent feedback on the risk taking of high and low test anxious children. Here effects of social aspects of evaluation are expected to vary for different children as a function of their success-failure and approval-disapproval motives.

Essentially, these three lines of research ask: what effects does the presence or absence of an adult have on different children's behavior in different situations? Once the adult is present, what are the effects of his reactions or non-reactions?

For several years my students and I have been interested in children's imitation of sex-inappropriate behavior. We've looked at the effects of the sex of the model on the probability that boys or girls will imitate such behaviors (Hill, 1971). We've become interested in the effects of an adult's presence versus his absence on such imitation. We assume that when a child has had a positive reinforcement history for behaving in a certain way, the adult's presence will facilitate performance, a form of social compliance. On the other hand, if the child has had a history of punishment, the adult's presence should inhibit or suppress behavior. Several studies (Peterson & Whitehurst, 1971; Steinman, 1971) have shown that imitation of appropriate behaviors is increased by an adult's presence or decreased if the adult leaves the situation. Studies by Meddock, Parsons, and Hill (1971), Redd and Wheeler (1973) and others show similar facilitating effects of an adult's presence in other performance and choice situations.

It is reasonable to assume that the child has been rewarded in the past for imitating or performing appropriately in similar situations. Thus the child may interpret these situations as ones in which the adult expects the child to imitate, perform at a high level, copy his preference etc. and the

adult's presence facilitates these behaviors. The adult's presence, however, could have quite different effects if in the past the child has been punished for engaging in a given behavior. As a result, the child may interpret the new situation as one in which the adult expects him to inhibit responding. For example, many boys have a strong history of punishment from adults for showing feminine behaviors or interacting with feminine objects, and the presence of an adult should deter rather than facilitate such responding compared to when the adult was absent.

What is the effect of a same-sex or opposite-sex adult who models inappropriate behavior? A study with Dusek, Palmer, and Shockey (see Hill, 1971) addressed this question. In this experiment nursery school children were exposed to same-sex and opposite-sex adult models who interacted with sex-inappropriate objects or children were placed in a no-model control condition. As expected, children showed greater disinhibition (more imitative responding with sex-inappropriate objects) with same-sex than opposite-sex models, and this effect was stronger for girls than boys. What was of greatest interest in these findings relevant to our present discussion was the extensive amount of imitation that occurred. Girls, for example, imitated 87% of the behaviors modeled, and the boys 63%. This imitation occurred inspite of (1) the sex-role inappropriateness of the objects, (2) the absence of any adult during the testing for imitation, (3) the absence of any explicit command such as "Do this" used in the "generalized imitation" literature, (4) the absence of any reinforcement for imitation either for the model or child, and (5) the presence of an alternative activity to engaging in the sex-inappropriate behavior, in this case playing with non-sex typed toys. Thus high levels of imitation were found with the adult absent, the lack of any strong form of social control included in earlier studies, and despite the negative social interaction history with the objects.

The results of the Hill, Dusek, Palmer, and Shockey study contrast with the earlier findings in the operant literature on "generalized imitation" in which performance falls off rapidly in the absence of the adult. Our results are somewhat difficult to interpret, however, because while there were no specific statements to imitate such as "do this," the adult did make several comments which might have functioned as a de facto instructional control: (a) First the model asked the child to "watch while I take my turn playing with the toys," and (b) the last statement made by the model was "OK, I'm going to another room for a few minutes to look for more toys. While I'm gone, you go ahead and play with the toys." A nearly completed master's thesis project by Janette Palmer with pre-school children and non-sex typed toys has shown that some statement or procedure encouraging the child to interact with the toys is necessary for any responding, consistent with the findings of Steinman, Bandura, and others. Stronger statements such as "take your turn," however, did not enhance the imitation tendency. Further, the familiarity or novelty of the response did not influence the amount of imitation shown.

Jan Palmer's study, then, has helped clarify the role of instructional statements and familiarity of behaviors in our imitation paradigm. We are planning follow-up research which we hope will provide clear-cut support for the hypotheses that (a) adult presence, especially for same-sex adults, will facilitate imitative responding (relative to the absence of the adult) if the child has had a history of positive reinforcement with similar behaviors, for example, with sex-appropriate objects. But, (b) adult presence will suppress imitative responding (relative to adult absence) if the child has had a history of punishment with similar behaviors and materials. Thus the adult's <u>absence</u> should produce the most imitation with sex-inappropriate objects, consistent

with our earlier, partial findings. Such results would demonstrate the importance of individual differences for both the strength and direction of the effects of an adult's presence in situations such as those explored in the "generalized imitation" literature. Consistent with the discussions of Steinman (1973) and Redd (1973b), we would expect these findings to generalize beyond sex-typed behaviors and imitative responding. Sex-typed objects were used because they provide a relatively clear index of the positive versus negative nature of boys' and girls' previous social reinforcement history with adults for such toys. The same results should obtain with other individual difference measures or experimentally manipulated social interaction histories. The inhibitory and facilitating social control functions of an adult's presence should also operate for other performance and learning measures (see Steinman, 1971, 1973).

Let us turn now to research on effects of adult presence but non-reaction in structured problem solving situations such as two-choice discrimination tasks. Here the child's task is not to decide whether to respond or not, such as in the "Generalized imitation" situation, but rather to decide which response to choose as he attempts to learn the task. Much of the research in this area has focused on the effects of adult non-reaction (often termed blank reaction) in combination with positive or negative overt feedback, that is, "right" or "wrong." Spence (1966) has shown with grade school children that two-choice verbal list learning is better under Wrong-blank feedback (that is, where the adult tells the child when he is wrong but says nothing after correct choices) than under Right-blank feedback (where the adult tells the child when he is correct but says nothing when he is wrong.)

There are several interpretations of why children learn better under Wrong-blank than Right-blank feedback. Spence (1966) has suggested that some children

interpret blank as indicating they are correct unless they are instructed to the contrary. These children would use the blank feedback appropriately in the Wrong-blank combination by treating blank as right. Such children would have difficulty in the Right-blank combination, however, since they would treat both answers as being right. Another possibility is that being told you are wrong is more aversive than being told you are right is reinforcing (see Crandall, Good, & Crandall, 1964). If this is the case, then children should learn more quickly in the Wrong-blank condition involving negative evaluation than the Right-blank condition. As Paris and Cairns (1972) and Redd (1973b) have noted, 'Wrong' may also carry more information than 'Right'-blank. Another factor that could be operating is that some children such as those who are highly test anxious, that is apprehensive about negative evaluations, may be less willing to conclude that adult non-reaction means that they are wrong (as they must do in order to learn in the right-blank condition) and more willing to conclude that it means that they are right (as in the Wrong-blank combination). The relative contributions of the informational and motivational properties of nonreaction are not yet entirely understood, that is, is learning under Right-blank feedback poorer in part because the blank is more difficult to interpret or because certain children are unwilling to admit that they are wrong when they are not forced to?

We have recently completed a study (Hill, Gelber, Jones, Lazar, & Schickedanz, 1973) which sought to clarify the information value of adult non-reaction in such two-choice learning tasks. Children's interpretation of blank, or non-reaction from an adult as a function of its pairing with "right" or "wrong" overt feedback was studied in a non-evaluative, observational context. The child watched through a one-way mirror as an evaluating adult provided feedback to a

tested adult who was performing at a two-choice discrimination learning task. Since the child was not learning the task himself, the adult's feedback had no bearing on the adequacy of the child's performance at the task and therefore the child's tendencies to avoid failure and disapproval should have been minimal. In addition the child had simply to learn the meaning of the adult non-reaction--he did not have to also solve the learning problem. The paradigm was designed to minimize motivational factors and optimize the chances of assessing the informational value of blank reactions.

The 64 subjects included middle grade school age boys and girls who were either high or low test anxious. All children watched the evaluating adult make blank reactions on the first six trials and then watched one of four feedback combinations over the subsequent 60 trials: (a) Right-blank and (b) Wrong-blank combinations similar to earlier studies, in which the child receives blank reactions on half the trials and right or wrong feedback on the other trials, (c) Right-Wrong-Blank, in which no adult reaction occurred on one-third of the trials and right or wrong feedback was provided on the other trials, and (d) All blanks. A trial-by-trial self-report assessment procedure was developed for the study. The child had a response panel on which he could indicate what he thought the blank reaction meant--Right, Wrong, or Don't Know, that is, the child did not know whether the adult was right or wrong.

Results were clear-cut and quite strong. There was little evidence that children consistently interpret blank as meaning right in the absence of other feedback. During the initial 6 blank reaction trials, children showed only a small tendency to choose right (43%) over wrong (31%) or Don't Know (26%). Looking more closely at the data, on the first trial most children did indicate blank as meaning right (N=44) as opposed to wrong (N=9) or Don't Know (N=11),

but this may just mean that the children assume initially that the adult is right and do not interpret the blank reaction at all.

In the absence of feedback about their choice (which children themselves never received or expected), 36 of the 44 children shifted from right to one of the other two interpretations on trial 2, and 7 more children on trial 3. Thus only one child of 64 said blank meant right three times in a row. Further, no child ever stabilized at the interpretation that blank meant right for 8 consecutive blank trials in either the All Blanks or the Right-Wrong-Blank conditions. What happens when blank is paired with overt feedback? Blank was not learned as meaning right when paired with wrong any faster than meaning wrong when paired with right. There was little evidence, then, that children interpreted blank as meaning right independent of feedback combination.

There was over-whelming evidence (over 75% of responding), however, that children interpreted blank as meaning the opposite of the overt feedback it was paired with, quickly coming to mean wrong in the Right-blank condition, and quickly coming to mean right in the Wrong-blank condition. Feedback combination accounted for about two-thirds of the total variance in analyses of right and wrong responses. Very importantly, blank came to mean wrong as quickly and strongly in the Right-blank combination as it came to mean right in the Wrong-blank condition. Eight of the 16 children in each condition indicated blank meant opposite of the overt feedback present on 8 consecutive trials (a very stringent criterion--chance $\underline{P} = 3^{8} = 1$ chance in 6,561) despite no feedback to the child about the meaning of blank. High anxious children of both sexes learned just as quickly as low anxious children.

The present results, then, indicate that middle grade school children are quite able and willing to interpret blank as meaning either right or wrong when

paired with opposite overt feedback and do so quite quckly and consistently in an observational context in which their task performance is not being evaluated and they do not have to learn the complex task at hand. In the actual learning context, do children learn that blank means wrong in the Right-blank quickly but fail to use that information? Or are they actually slower to recognize the meaning of blank--either because they are less motivated to solve the problem (than children being told they are wrong) or are less willing to admit that they are wrong? Eric Gelber, Helen Jones and I are currently testing for these possibilities in a study of the various feedback combinations in the actual learning context. Half of the children are making a trial-by-trial assessment of the meaning of blank while half simply perform at the learning task, and are asked questions about the meaning of blank in a post-experimental session. Low and high test anxious children of each sex are included in the design to test motivational hypotheses, e.g., that high anxious children (compared to low anxious children) are less likely to admit that blank means they are wrong and more likely to say they aren't sure of its meaning. Thus both the probability of inferring that blank means the opposite or that the overt feedback it is paired with and the ability to use that information effectively will be studied when the child is actually in the learning context.

Let us turn briefly to a third line of research concerning different kinds of social and non-social (or task inherent) feedback available to children in problem solving situations. This work is related to a theory we have proposed elsewhere (Hill, 1972) about the motivational dispositions of children of varying levels of test anxiety. We have suggested that both the motives to obtain approval and success and the motives to avoid disapproval and failure increase as level of evaluation anxiety increases, but the increase is especially apparent

for avoidance tendencies. Thus low anxious children are relatively more concerned about succeeding and obtaining approval whereas high anxious children are more concerned about avoiding failure and disapproval. We have further suggested that effects of success and failure are enhanced if adult approval and disapproval accompany them. We seek success and fear failure because of the reactions of others.

The present research examines systematic individual differences (with an emphasis on anxiety effects) on children's reactions to social aspects of adult evaluation, which can be quite complex. Consider first a situation involving non-social, or task-inherent feedback only. We have developed a puzzle design task in which children sort WISC-type blocks into frameboards to complete designs they are told are all solvable. On each trial the child chooses which one of a set of five designs he wishes to make, ranging from a solid design involving block sides of all one color to a very complex pattern involving many diagonal block sides. Two samples of grade school children have shown very strong agreement in confirming five discrete levels of difficulty for the five designs in each set. The puzzle task has a clear criteria for success or failure on each problem, since the children can judge whether or not they complete a design. The situation can be arranged so that children perform alone and can be led to expect no subsequent adult evaluation, for example, by asking children to discard all designs and puzzle materials into big boxes before returning to regular school activities. Such a situation should involve minimal current social evaluation. At least three kinds of social evaluation can be added to this situation: (1) An adult can be present and able to monitor performance, so that adult evaluation becomes possible. (2) An adult can explicitly promise to evaluate later the adequacy of the child's efforts, and (3) Social evaluation could be further enhanced by the promise of later social comparisons. Here the

adequacy of the child's performance could be defined in terms of how well other children of the same age perform at the task. Consistent with Veroff's (1969) thinking and findings, we have suggested that as children become older, social comparison aspects of evaluation become the most influential of all forms of feedback under consideration. We have recently suggested (Hill, 1972) that social evaluation of these kinds enhances the motivational effects of task-inherent success-failure feedback, especially for high test anxious children. High anxious (compared to less anxious) children are expected to avoid situations involving a moderate risk of failure, and this tendency should be enhanced as social components of evaluation are added to the situation.

We are testing these notions with older grade school children. In an initial sample, twenty fifth- and sixth grade boys chosen from a larger group on the basis of low or high test anxiety scores (see Hill & Sarason, 1966), were placed in one of two evaluative conditions of central interest. These included Task-inherent Feedback in which the children performed at the puzzle task alone and with no subsequent adult evaluation expected or even mentioned, and Social Evaluation in which the child performed alone but was promised subsequent evaluation from the adult as to how well the child did on each puzzle. The expected tendency for less anxious children to choose more difficult puzzles than anxious children was significant, and the expected tendency for promised adult evaluation to lower risk taking occurred as a trend. The combined effect of social evaluation and test anxiety can be seen in children's willingness to choose the most difficult puzzle design in each set. The low test anxious children when performing by themselves <u>without</u> social evaluation choose the most difficult designs in a clear majority of choices (73%), while <u>no</u> high test anxious child under social evaluation chose the most difficult

design on any of their trials. It seems clear already that the amount and form of social evaluation present combined with the child's anxiety level and his reactions to anticipated evaluation are major determinants of children's risk taking and possibly other achievement related behaviors.

Our three lines of research are inter-related by several themes in common to the other papers presented here. There is an emphasis in all three areas on the child's desire to obtain approval and avoid disapproval from adults. The research shows some of the complex ways in which what is expected of the child is either conveyed to the child in the testing situation or generated by the child on the basis of his past experience. In the imitation research, children's expectancy for approval or disapproval is based on their previous experience with sex-typed objects. Adult non-reaction in the learning task gains its evaluative meaning within the context of positive and negative reactions of the adult to other responses. And in the risk-taking paradigm, task-inherent feedback and social aspects of adult evaluation are believed to interact with children's approval and disapproval motives.

The present research also suggests complex ways in which adult presence but nonresponsiveness effects a variety of behaviors, and how the effects of such non-reaction interacts with concurrent approval or disapproval. Thus in the imitation research, adult presence but nonreaction is seen to have an inhibitory or facilitating social control function in a situation in which the child may perform or not. On the other hand, in the highly structured learning task in which the child must choose a response on each trial, adult non-reaction appears to acquire both informational and motivational value as a function of the overt feedback it is paired with. And in the risk-taking research, the effects of possible success and failure for low and high test anxious children

are hypothesized to be influenced by whether the child performs alone or with an adult present, and by whether and what kind of future adult evaluation is possible or promised.

The three sets of research taken together seek to clarify what appear to be wide individual differences in the subtle but powerful influence exerted by both non-reaction from an observing adult and the evaluative aspects of social cues operative in a variety of interpersonal and achievement situations.

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THE EFFECTS OF SOCIAL CUES ON CHILDREN'S ATTRIBUTIONS OF SUCCESS AND FAILURE AND ON GENERALIZATION OF IMITATION[1]

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Many alternative interpretations may be given for any event and it is likely that the interpretation the child provides will affect the way in which he reacts to that event. As my colleagues have demonstrated, when one attempts to specify the determinants of children's behavior, it is often insufficient, or even misleading, to look only at the events that the experimenter has explicitly programmed or to view them only in the way that the experimenter views them. Rather, it is necessary also to consider such things as contextual social variables to which the child might be sensitive, and the child's individual history and how it might interact with the experimental manipulations. The purpose of this paper is to examine some of the ways in which social cues, in conjunction with the child's history, influence: 1) the child's interpretation of and reaction to failure feedback in evaluative settings, and 2) the child's interpretation and utilization of implicit instructions in a modeling-imitation situation.

The first question grows out of some research on learned helplessness in achievement situations. Learned helplessness, as you may know refers to the perception of independence between one's responses and the onset or offset of an aversive event (Maier, Seligman, and Solomon, 1969); that is, independence between what you do and what happens to you. Our previous research (Dweck, 1972; Dweck and Reppucci, 1973) has demonstrated a clear relationship between children's performance following failure and the way in which they perceive failure--whether they attribute it to factors within their control or beyond

their control (cf. Weiner and Kukla, 1970). I would like to describe some of this work and then go on to suggest that the characteristics of the evaluating agent, such as age and sex, may be important determinants of helplessness in achievement situations; that these characteristics may serve as cues for what outcome is most likely (whether failure will occur), and perhaps after the fact, for why it occurred (to what the outcome may be attributed).

Basically, our past work on learned helplessness focused on individual differences, or, general dispositions to attribute failure to controllable or uncontrollable variables. For example, in one study (Dweck and Reppucci, 1973) children were given soluble problems by one experimenter (Success E) interspersed with insoluble problems from another experimenter (Failure E). Thus, one experimenter came to signal success and the other failure. After a number of trials, the Failure E administered some soluble problems. They were identical to ones the children had previously solved from the Success E, yet a number of children did not solve them. Those children who failed to solve the problems the second time around or who showed marked decrements in performance were those who tended to attribute failure to external factors, such as the inequity of other people or the unfairness of the task, or to a specific internal factor--their own lack of ability. Both of these interpretations of failure reflect the child's belief in his inability to change the situation and obtain success. Those children who showed improved performance or no deterioration were the ones who tended to take responsibility for failure and to attribute it to insufficient effort, a variable very much under their control. In this study, then, different children given "identical" experiences differed in their reactions, presumably as a function of how they had learned to interpret similar experiences in the past.

Thus attributions are correlated with performance following failure. What happens if you change a child's attribution for failure? In a subsequent study (Dweck, 1972), a number of extremely helpless children were identified, i.e., children who displayed the attributional and behavioral pattern indicative of helplessness. The performance of these children underwent severe deterioration in both speed and accuracy following any sort of failure. Problems that were well within their abilities and that were easily solved under normal circumstances became very difficult for them after a failure experience. Here, through the use of a training procedure, administered over a period of several months, attributions for failure were manipulated to determine whether this would result in altered reactions to failure. Stable baselines of performance on arithmetic problems were established, performance following failure was assessed, and then, in a different situation, the training procedure was instituted. Half of the children were given predominantly success along with several failure trials in each training session. After each failure, the E verbally attributed the failure to insufficient effort. The other half of the subjects were given only success trials during this period. The effects of the procedures were evaluated at the middle and the end of training by putting the children back in the original situation, re-establishing stable baselines of performance and once again assessing the effects of failure on their rate and accuracy of problem-solving.

The "attribution retraining" was expected to result in the greater change in reaction to failure because in addition to receiving success on most occasions, the children were taught a new interpretation for failure. However, the "success only" procedure would be expected to prove beneficial as well, if one adheres to a "deprivation" model of helplessness; that is, the notion

that these children need success experiences to bolster their confidence and to inoculate them against the effects of failure. We found that success was not enough. The great majority of children in this condition continued to display marked decrements in both speed and accuracy fo performance whenever failure was introduced. In a few cases, the post-training decrements following failure were larger than those prior to training. Apparently failure retained its properties as a cue for an uncontrollable situation and had not been appreciably altered in its meaning or effect as a result of prolonged success. Only the children who received attribution retraining began to respond more adaptively to failure. In fact, by the end of training, most of these children actually showed <u>improved</u> performance following failure in the test situation in striking contrast to the dramatic impairment they had shown initially.

These studies attempted to predict children's reactions to socially delivered evaluative feedback from their attributions which had been previously assessed by questionnaires or which had been manipulated through training. The work in progress I would like to discuss now examines ways in which social cues present in the situation (i.e., the characteristics of the evaluating agent) can actually determine attributions for and reactions to failure. The specific cues that are being investigated relate to the sex and age of the agent assessing performance and delivering the feedback. While many researchers have reported sex differences in performance as a function of the sex of the experimenter (e.g., Stevenson, 1965), there has been little systematic research exploring the basis of these effects in terms of the child's interpretation of the feedback from the agents or his social interaction history with the agents. Furthermore, the relative effectiveness of peer and adult evaluations for boys as compared to girls has not been adequately assessed, let alone examined in this context.

For the most part, the widespread influence of such social cues has not been fully recognized. For this reason, agent characteristics have not constituted the focus of much research when in fact they may be major determinants of sex differences in achievement situations. For example, in the first study described (Dweck and Reppucci, 1973), it was found that girls as compared to boys, showed more performance decrements and larger ones following failure. We also found that girls showed less of a tendency to attribute failure to lack of effort and a relatively greater tendency to attribute it to lack of ability. However, the experimenters were adult females and it is not clear what effect this factor might have had on the results. In addition, attributions were assessed by means of a questionnaire, the Intellectual Achievement Responsibility Scale (Crandall, Katkovsky, and Crandall, 1965), administered some time prior to the study. Many of the achievement situations portrayed on this scale are school-related ones where, again, the agent of evaluation is typically a female adult.

There is considerable evidence suggesting that males and females differ in their reactions to praise and criticism from different agents. For example, the social reinforcement literature indicates that children's performance is more affected by praise from an opposite sex adult (Allen, Spear, and Johnson, 1969; Gewirtz, 1954; Hill, 1967; Patterson, Littman, and Hinsey, 1964; Stevenson, 1961, 1965; Stevenson and Hill, 1965; Stevenson and Knights, 1962) and nonreaction or criticism from a same-sex adult (Hill and Moely, 1969; Hill and Stevenson, 1965; Montanelli and Hill, 1969; Stevenson and Knights, 1962). However, little is known about what might mediate these differing reactions or what social interaction histories might promote them.

The evidence also indicates that males and females have different patterns of interaction with certain social agents. Research in the area of school

behavior problems (e.g., Sarason, 1959; Ullman, 1957; Wickman, 1929), academic achievement (Gates, 1961; Gowan, 1955; Stroud and Lindquist, 1942), and motivation to succeed in school (Stevenson, 1968) shows boys to be way ahead in the first of these, but behind in the others. Boys are criticized and scolded more (Meyer and Thompson, 1963; Sears and Feldman, 1966) and are rated more negatively on a variety of personal characteristics (Stevenson, Hill, Hale, and Moely, 1966). They comprise approximately two-thirds of the grade repeaters (Peltier, 1968), generally score lower on tests of reading achievement (Asher, 1973; Gates, 1961; Stroud and Lindquist, 1942), and are consistently rated by teachers as less hardworking (Stevenson, 1968). The evaluating agent in these cases is usually a female adult. Thus, the relationship of the typical boy with the woman in his life is often less than optimal.

Our research is attempting to link the effects of evaluative feedback from different agents to the differing interactions boys and girls have with these agents. Utilizing a combination of experimental and observational techniques, we are conducting three related studies along these lines. The first explores sex differences in reactions to and attributions for failure as a function of the agent of evaluation. The second examines interaction patterns which might constitute the basis of the sex differences, and the third attempts to suggest the presence of a causal relationship between interaction patterns and sex differences by isolating the critical features of the interactions and manipulating them in an experimental situation.

The first study, then, relates boys' and girls' reactions to failure delivered by the different social agents to the attributions they make for failure from these agents. We believe that boys and girls have learned to interpret failure from the various agents in different ways and that these attributions mediate their reactions. In this study we are using both male and female adults

and male and female peers as agents of evaluation. On the basis of the social reinforcement literature, we are predicting that negative evaluation from the same-sex adult will have a greater impact on performance, and on the basis of previous achievement literature that negative evaluation from adults will generally have a greater effect on girls. In addition, the debilitating effects of failure feedback are expected to be associated with attributions to uncontrollable factors. We are including peer agents for purposes of comparison because most of the previous data suggesting that girls are more affected by negative evaluation than boys are. Most of these data have been gathered in situations where adults have served as the agents of evaluation; yet it has been proposed on the basis of them (e.g., V.J. Crandall, 1963) that this discrepancy reflects a greater degree of "internal standards of excellence" on the part of boys. While this may be so, we also know that during the middle to late elementary school years, peers increase in their importance as agents of reinforcement (Hartup, 1967; Patterson and Anderson, 1963). We suspect, therefore, that at least part of this observed sex difference in sensitivity to failure may be due to the fact that the more effective agent of evaluation for boys may simply be the peer as opposed to the adult. If this is the case, then we would expect boys to display the "helpless" pattern of attributions and performance change in the fact of failure when the agent of evaluation is the male peer, just as we expect that girls are likely to give up after failure and attribute it, for example, to lack of ability when the agent is an adult (especially a female adult).

The second study is examining the social interactions between children and one of the agents--the female teacher--to test several hypotheses about the kind of interactions that would produce the different attributions and reactions to failure. We are hypothesizing that boys in comparison to girls generally receive more criticism, but that it is relatively less often directed at the

quality of their intellectual performance and more often at their conduct on and off task, as well as such things as neatness, instruction following, lack of effort, and the like. We expect that praise, on the other hand, will be more explicitly addressed to their intellectual performance. However, for girls, praise may often be given for a vast variety of behaviors, academic and non-academic--even non-intellectual aspects of academic performance. But criticism may be more specifically directed at intellectual-academic failures, since girls have fewer behavior problems, failures to follow directions, etc., and are generally conscientious. Essentially, evaluative interactions of teachers with boys and girls in the classroom are being assessed in terms of the extent to which positive and negative feedback are contingent upon the quality of their intellectual-academic performance, as opposed to their conduct or some intellectually irrelevant aspect of the task. Evaluations are also being examined in terms of attributions which are implied or actually stated by the teacher in her assessment of the child's work. We expect that boys' failures are more often attributed by the teacher to lack of effort, possibly because they do in fact exert less effort, but girls' failures, because of their greater diligence, to their lack of ability.

When we view the situation in this way, boys have an easy excuse for failure delivered by a teacher-like evaluator. They can either attribute it to lack of effort or to the external agent who criticizes them a great deal. (In fact, it has been reported that women teachers scold misbehaving boys far more often and more severely than they scold girls for the same behavior (Sears and Feldman, 1966)). Many girls, on the other hand, who are generally praised by these agents and are usually trying their best, have little choice but to blame their abilities. (We actually found in one of our studies, Dweck and Reppucci

(1973), that the girls who showed the greatest deterioration in performance following failure were the ones who expended the greatest amount of effort initially.)

The third study, which builds on the results of the second, asks the question: If within a carefully controlled experimental situation we manipulate the critical features of the typical teacher-boy and teacher-girl interactions observed in the classroom, will we get experimental group differences similar to the sex differences observed in the first study, regardless of the sex of the subject? For example, the "teacher-boy" condition might involve criticism for conduct and intellectually-irrelevant aspects of on-task behavior during the practice trials. The "teacher-girl" condition might involve praise for these same aspects of behavior. This would be followed by an achievement task similar to that in the first study of this series, in which failure is administered and performance change and attributions for failure are assessed.

If our results are as predicted, they would suggest that modes of interaction with certain social agents promote particular patterns of attributions and that these agents come to serve as cues for these attributions in achievement situation.

I would like now to turn briefly to some of our research on imitation which illustrates an additional way in which social cues affect children's interpretation of an event and their subsequent behavior -- via instructions. Typically, the term "instruction" is used to mean a verbal direction given to the subject prior to his performance of some activity. In the present context "instruction" is used in a broader sense to refer to any cues the child may use to infer what he is supposed to do in the situation. Used in this sense, as Steinman (1973) has suggested, the behavior of a model the child observes would serve as an instruction. Such social cues have been shown to be influential in generalized imitation, but have not been studied in the generalization of imitation.

There has been some research demonstrating that behaviors learned through observation will generalize to different experiments and different stimulus materials in the experimental tasks (Bandura and McDonald, 1963; Bandura and Mischel, 1965). However, there has been little systematic study of the conditions necessary for generalization to occur, either with respect to the behavior of the model or the stimulus conditions present during the subject's performance. Indeed, other investigators have failed to find generalization, except under conditions highly similar to those in which the behavior was first observed (Croner and Willis, 1961; Harris, 1970).

Because of the ambiguity of past findings, Colleen Surber and I are conducting a study to identify factors that govern the probability that modeled behavior will be imitated in a novel situation. More specifically, we are asking: How does the child interpret what is being modeled and what rules might he follow in deciding whether or not to imitate? We are attempting to show that a somewhat neglected variable might be a critical determinant of whether a child will show transfer to a new situation: his interpretation of the to-be-generalized response as a highly specific one or as an example of a more general class of responses.

Without altering the behavior in which the model engages, in this case sharing earned rewards with a needy child, we are varying the verbalization which accompanies this behavior to emphasize either its specificity or generality. Previous research has suggested that verbalizations of reasons for the model's behavior may be relevant to imitative behavior in children. For example, Poulos and Liebert (1972) found that a model's verbalization that "it would be good to give" enhances imitation of sharing, although others have failed to find this effect (Bryan and Walbek, 1970; Grusec and Subiski, 1970). However, there has apparently been no explicit exploration of the effect of a model's verbal-

izations on the generalization of imitation, of the types of verbalizations (i.e., specific to the experimental task vs. a general principle), or of the ways in which verbalizations might interact with the age of the subjects. The fact that the nature of the verbalizations has not been varied and that little attention has been paid to the developmental level of the child in relation to the type of verbalization may account for the inconsistency of previous findings.

In the present study, the model's sharing is accompanied by either no verbalization, a very specific on (i.e., stressing the worthiness of the particular recipient), or a very general one (stressing the desirability of sharing). There is also a condition in which the model shares with several recipients and makes a specific verbalization in reference to each. The child then has the opportunity to perform either in the same situation, in a different situation with the same recipient, in the same situation with a different recipient, or in a different situation with a different recipient. We expect that providing a verbalization which emphasizes the generality of the model's action will facilitate transfer for our nine and ten-year olds who can easily make use of verbal mediators. For our pre-school subjects, however, we expect that the condition in which they observe several examples of specific actions accompanied by verbalizations will promote greater generalization (cf. studies on transfer of training in concept formation and other tasks (Callantine and Warren, 1955; Dashiell, 1924; Duncan, 1958)).

In summary, we hope to demonstrate that the way in which the child reacts to the behavior of another person, be it evaluative feedback or modeled behavior, is, in large part, dependent upon the subtle, but powerful, social cues which operate in the situation. These cues, such as the characteristics of the evaluating agent or the verbalizations accompanying a model's responses, may be viewed as

providing the child with information about what the agent's behavior signifies and, therefore, what responses on his part are appropriate. In addition, this research emphasizes the necessity of considering how the effects of social cues on the child's interpretation of and reaction to events may vary as a function of his individual history. In an achievement situation, for example, the import of a given cue will change according to the child's prior experience with similar agents in analogous situations. In the imitation situation described, the effectiveness of the cue will depend on the child's cognitive ability to utilize the information when he is presented with the opportunity to perform. To the extent that we can specify these histories and determine the manner in which social cues interact with them, we can begin to predict children's behavior with increasingly greater accuracy and perhaps to devise ways to facilitate adaptive behavior.

Footnote

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First Discussant

Virginia Crandall

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When I was first informed about the list of participants for this symposium it seemed to me, as perhaps it did to some of you, that it might be well-nigh impossible for researchers working under such disparate research traditions and methods to provide the kind of cohesive program we have heard here this morning. It is clear, of course, that each of them individually has been pursuing his own set of problems with the systematic, integrated step-by-step attack which yields tha most solid scientific payoff. But what the complete set of papers in toto reveals is the complementary and symbiotic nature of the contributions from operant methods and individual differences, reinforcement and imitation, experimental manipulations and scale scores -- all focused on a fairly common issue -- the influence of social cues upon children's behaviors. This symposium represents a star example of the advances to be achieved from a synthesis of divergent attacks on the same general set of problems.

First Dr. Steinman demonstrates that generalized imitation -- in fact generalized responding of various kinds -- is the prevalent response and requires early and special efforts to overcome it in order to produce differential responding. Dr. Steinman proposes that social approval must appear to the child to be dependent on consistent responding to all stimuli and has sufficient reinforcing value to maintain responding not receiving any extrinsic reinforcers.

Dr. Redd then goes on to demonstrate that a mere statement of adult preference or instructions will determine the child's response, even in the face of greater extrinsic reinforcement for non-compliant responding, and that these effects will hold for some subjects even after the adult is no longer present.

Dr. Hill's paper then reports investigations of individual differences in imitation and other responses to adult presence and feedback, proposing that differing reinforcement histories in situ, in interaction with model characteristics, may determine both facilitation of appropriate responding and inhibition of inappropriate responding.

Finally, Dr. Dweck proposes that individual differences in both child subjects and adult and child social agents influence the child's responses to the social cues emitted by those agents, depending on the experimental or antecedent history between the two.

For the moment I would like to return to the work reported by Drs. Steinman and Redd. Adult presence, instructions, statements of preference, etc. appear to facilitate that form of responding that reflects what the child anticipates the adult wishes him to do. Furthermore, even though the study by Hill and colleagues (Hill, Dusek, Palmer & Shockey; see Hill, 1971) on sex role appropriate behavior also examines the inhibition of sex role inappropriate behavior, it is based on facilitation or inhibition which is in accord with previous adult socialization. In all cases, behavior is expected to take the direction reinforcement histories would dictate; either its exhibition or inhibition is assumed to please the present adult.

Now, I would like to suggest that it might be equally interesting to examine the other end of these phenomena, i.e., under what conditions and for what subjects the adult's presence is likely to elicit less of the acceptable behavior, or even nonsocially acceptable behavior, behaviors which appear to be designed to displease or embarrass the adult and are either independent of, or run counter to, reinforcement histories with most adult agents. Consider for the moment that in the studies reported by Steinman and Redd, and the sex-role appropriate studies of Hill, subject samples have uniformly been of

preschool or first grade age levels -- ages when children's behaviors are more likely to be under greater adult control than is the case at, say, pre-adolescent and adolescent age levels. Behavior which is designed to gain adult acceptance and approval may be more pronounced at the younger ages used in these studies than at older ages. We do know that socially desirable response tendencies tend to decrease with age and that behavior sometimes referred to rather inelegantly as the "screw you" phenomenon is more prevalent in adolescent and college age samples. Is it possible, then, that if the control of adult social cues were studies developmentally, we might find that the same conditions used here produce less generalized imitation, more differentiation; less impact of adult preference and instructions, more response to extrinsic reinforcers; less response to adult that to peer demands, at later developmental levels? Without replication at older age levels, we cannot be certain of the generality of the present findings.

But age is only a demographic dimension on which response to implied adult expectations might be expected to vary and age differences may easily be reflective of a number of other changes besides that in the desire for adult approval which we have proposed may be responsible for the present phenomena. It will be remembered that even among the same-age subjects used in these studies there was variation in response. Certain manipulations in Dr. Steinman's experiments produced nondifferentiated responding in some subjects, differentiated responding in others, some of each response in still others. And in Dr. Redd's first two studies, although 4 of his 8 subjects continued with the adults' preferred stimulus even in the adults' absence, two of them stuck with the non-preferred stimulus after the adult left. Such variations in response to the same manipulations may of course be due to any number of unknown differences

among the young children involved, but one likely possibility may be that already some individual differences have developed in the reinforcement value of potential adult approval-disapproval vs. the other reinforcers available. If we are to test our hypothesis directly we must have some external, independent assessment of the reward value of adults' approval and/or the punishment value of their disapproval.

Measures of socially desirable responding have been developed which, from the nomological nets gathered around them, appear to have a good deal of validity as indices of the value children hold for others' evaluations. Furthermore, the stimuli contained in these instruments consist almost entirely of behaviors and attitudes promulgated by the adult culture. High scores on these scales are regularly associated with greater behavioral compliance, conformity, and more rapid conditioning. Such subjects also perform less well on discrimination learning tasks (Crowne, Holland & Conn, 1968), and more readily imitate adults (Allaman, Joyce and Crandall, 1972) in natural social settings. In addition, they also exhibit more sex-role appropriate behaviors (Allaman, et. al., 1972) in those settings. I would almost be willing to bet, then, that children who, among their same age peers, show greater social desirability tendencies would be those who would respond most to the implied or explicit adult demands in the current studies. Those whose low scores indicate least concern with adult approval might show least generalized imitation, most differentiation; least facilitation by adult presence, preferences and instructions; and greatest readiness to disregard such adult directives in the adult's subsequent absence. Furthermore, these children with low social desirability tendencies should show easiest disinhibition of sex-role inappropriate responding in the studies of Dr. Hill and his colleagues.

Actually, though, I don't seriously expect colleagues from the individual analysis tradition such as Warren and Bill to start using individual difference measures to help account for the avriability they find around their modal tendencies. But would they compromise with me? Suppose they were to examine some of the parental behaviors which are antecedent to socially desirable responding, and were to build these into adult treatment differences? We have found that parental practices that might be generally characterized as "harsh" -- more hostility, criticism, punitiveness, coerciveness, lack of involvement and contact -- militated toward greater concern with adult approval-disapproval as evidenced in higher social desirability scores. Would it be possible to train the adult experimenters in the present studies to evidence differing levels of these same sorts of behaviors as they engaged themselves with the child subjects? Again, if these adult treatment manipulations could be sufficiently exaggerated (within the bounds of ethical limits, of course), I would suspect that concern with that adult's approval would be commensurately modified, and accordingly reflected in greater and less generalized responding and compliance to the adult's instructions, preferences, etc. In fact, it may be that the broader warm vs. cold experimenter differences found by Walters & Ray (1960) and others in the social reinforcement literature may already reflect the elicitation of such differential concern with the adult's approval. Similar, but more specific, experimenter treatments could be used in the present context to manipulate the value of social approval-disapproval thought to underlie these responses.

I would like to turn now to Ken's work with his colleagues on adult non-reaction, as it is paired with overt right and wrong responses. I would agree with him that under certain conditions, the non-reaction (or "blank" reaction)

readily yields the same amount of information and comes to take on meaning opposite to the overt verbal response it is paired with, and with equal facility. This is true when the subject is presented with a discrimination task in which he has only to make judgments on a single dimension and to learn which end or value on that dimension is correct, which one is incorrect. For example, if paired stimuli in a two choice task vary only on color, he has only to learn that when an overt, verbalized "right" is associated with his choice of red, and non-reaction (or blank) is associated with his choice of blue, the blank indicates that blue must be wrong. Conversely, "wrong" associated with his choice of blue signifies with equal clarity that blank associated with his choice of red indicates that red must be right. In such a simple, one dimensional task, he has only to learn that blank is opposite in "correctness" to the overt, verbalized reinforcer. It is on such a dimension of "correctness" that the observing children in the study by Hill and colleagues (Hill, et. al., 1973) are asked to respond. They need merely to indicate whether the tested adult was right or wrong as the evaluating adult responded with "blank," coupled with one or the other verbal reinforcer. In this case, the task in which the adult was actually engaged and the discriminations required of him to do the task are actually irrelevant to the child subject. The child need only listen to the evaluating adult as he verbalizes either "right" or "wrong" and note that he says nothing after other trials. In such an instance, "blank" takes on opposite but equivalent informational value to the verbal reinforcer with which it is paired.

However, when an individual is himself engaged in a discrimination task involving stimuli that vary along more than the one relevant or criterion dimension, the situation is somewhat different in informational value. To

use our previous example, the two-choice stimulus pair may then vary not only on color, but let us say, also on size, position, and form. As the subject approaches the task, he will respond in accord with a response set or hypothesis that one or another of those dimensions is the relevant one on which correct-incorrect evaluation is contingent. If he is in the "wrong-blank" treatment, acquisition will occur rapidly as he consecutively responds to irrelevant dimensions, is told "wrong," and can eliminate those dimensions systematically one by one. However, when it is remembered that all dimensions, relevant and irrelevant, coexist in one of each pair of stimuli, it can be seen that a subject in the "right-blank" treatment will be rewarded by "right" each time he chooses one of the stimulus pair in which the appropriate value of the relevant dimension happens to occur in combination with that one of the irrelevant dimensions which he has incorrectly used as his hypothesis. Thus, the irrelevant-dimension hypothesis he holds gets reinforced, takes longer to extinguish and acquisition is delayed. It is therefore possible that in multidimensional discrimination learning tasks, the superiority of "wrong-blank" conditions arises because the overt verbal reinforcers "right" and "wrong" have differential cue or informational qualities, regardless of the interpretation of "blank." This hypothesis has been demonstrated in a study by Meyer and Offenback (1962). If one takes this study in combination with the findings from Meyer and Seidman (1960, 1961), they demonstrate the equivalence of "wrong-blank," "right-wrong" and "right-blank" conditions with single dimension stimuli, but the inferiority of "right-blank," as compared with the conditions including the verbalized "wrong," in multidimensional tasks.

Now, this is not to say that the superiority of "wrong-blank" conditions demonstrated in several discrimination learning studies (Brackbill & O'Hara,

1958; Meyer & Seidman, 1960, 1961; Penney & Lupton, 1961) is limited only to the superior informational value of "wrong" in those conditions. In fact, some of our own work (Crandall, 1963; Crandall, Good & Crandall, 1964) illustrates the superior reinforcing value of "wrong," and of blank following "wrong," even in a single dimension task. Thus, the motivational hypothesis in which Ken and his colleagues are primarily interested is a very viable one and has been evidenced on at least one motivational variable, expectancy change. And Redd's work also seems to point to motivational differences aroused by positive and negative conditions. What I want to draw attention to here, however, is that the particular paradigm used by Gelber, Hill, and colleagues has not eliminated the informational hypothesis as it applies to the typical two-or-more-dimensions discrimination learning task, for their child subjects were dealing only with a single dimension.

It should also be remembered that verbal stimuli, as well as objects, may vary along a number of dimensions, and that the child may impose additional dimensions on many stimuli in natural discrimination learning situations he encounters in situ.

Thus, I would be extremely cautious about concluding that informational properties of the "right-blank" and "wrong-blank" conditions are equivalent without a careful analysis of the number of possible dimensions which might be imposed on the stimuli to which the subject is responding.

The study by Dweck and Reppucci provides a beautiful demonstration of the ease with which a particular adult can become associated with success or failure, and cue commensurate good or poor performance, even though the difficulty of the task does not objectively differ. The implications of this finding for children's problem solving and achievement can hardly be overestimated. Is it

possible that important socializing agents such as parents and teachers who present the child with tasks too difficult for him or hold standards of success so high that the child repeatedly fails -- is it possible that such practices associate that adult with failure and actually cause the child's performance to deteriorate, so that his problem becomes progressively worse? This finding would seem to demand that we discover how failure cues associated with an adult can be modified. Although Dweck's subsequent study illustrates that children who showed least deterioration or actual improvement after failure were those who attributed that failure to their own lack of effort, and that it is possible to train them to acquire such attributions, my concern would be that such laboriously-trained internal expectancies may quickly extinguish if we cannot also neutralize or reverse the failure cues surrounding the adult who interacts with the child in the task situation.

Finally, as to Dr. Dweck's present and proposed work dealing with teacher vs. peer effectiveness: She proposes that male peers may be more effective evaluative agents with male subjects than are female teachers, or female teacher-like agents -- that male peers may increase boy's attributions for failure to ability and cause a greater debilitation in their performance than will adult females. I am not so sure that I would agree with these hypotheses, primarily because of the nature of the achievement situation (a digit-letter substitution task) that she is using. Our own work has repeatedly found that achievement-related orientations and behaviors differ in accord with the kind of skill required and assessed by the task. And if we can extrapolate at all from the model competence findings, we might expect that evaluations from the social agent who is seen as the most expert would be the most influential. Thus, while male peers might be expected to be the more potent agents in, say, sex-

and age-appropriate games or sports activities, I would think that would be less likely in the digit-letter task. This is because that task is likely to appear to be more nearly an academic problem, where an adult teacher-like agent should be seen as the more expert.

Carol proposes that teachers' criticism of boys is less often contingent on their task-relevant behaviors. However, teachers also communicate simultaneously to the boys that their task failures are due to their own lack of effort. This means the male student may either come to blame his failure on the teacher's non-contingent criticisms or he may believe her verbal communications that his own lack of effort was at fault. The data in the Dweck and Repucci study indicate that boys, more often than girls, accept greater blame for the intellecual-academic failures posed in the IAR, and it would be presumed that these attributions are heavily influenced by students' interactions with their teachers. In addition, attributions to lack of effort distinguished generally persistent from "helpless" (i.e. non-persistent) subjects equally well for both sexes. These findings seem to say that boys "buy" the teacher's lack-of-effort communications and the persistence of their general classroom behavior is affected accordingly. However, Dweck and Repucci also found that boys' performance on a laboratory task was not debilitated as much as girls' after failure administered by a femlae examiner. Carol has hypothesized that this may have resulted from the fact that criticism has previously been found to be more effective from a same-sex adult. This would lead one to expect that boys will be more responsive to adult male evaluators than adult female evaluators in the failure situation she proposes to use. But in either case, the greater assumed expertise of adults than of peers for this academic-like task would lead me to anticipate that boys should be more responsive to the older evaluators. At any rate, I will be most interested in the findings from this set of studies when Carol and her colleagues complete them.

Second Discussant

Ross D. Parke

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In the past two decades there has been a virtual outpouring of research concerning the importance of adult social cues in controlling children's behavior. The significant contribution that these papers make is to expand our views concerning the nature of the social cues that can alter adult-child interactions. Not only are we apparently well beyond any simple mechanistic view of social reinforcement as the prime modifier of child behavior, but we may even be reaching the point that our data are finally becoming consistent with our common-sense observations, namely that a variety of social influence procedures may even be more effective than social reinforcement, at least sometimes.

I would like to comment briefly on some of the specifics of these papers, but to concentrate on the general research strategies that these papers represent with the aim of illustrating some of the limitations of a sole reliance on laboratory paradigms for achieving an understanding of both the contemporaneous operation of and the development of social cue effectiveness.

There are three questions that merit duscussion concerning instructions. First, what diverse functions are subsumed under this label? Second, how does each of these functions acquire effectiveness? Third, how are the operation of instructions affected by situational variables; or more generally, what is the ecological validity of these findings?

Instructions can convey a variety of meanings. As Marlatt (1972) has noted, instructions have both instigational and directive functions. The instigational function of instructions is designed to initiate or facilitate intention to perform in a general sense. ("The 'This is what I want you to

do' aspect".) The directive function directs the S's attention to stimulus conditions in the task and to specified performance responses required to engage in task behavior. As Steinmann has noted, instructions have an implicit reinforcement function as well. This raises the question, of course, concerning the usefulness of distinguishing between instructions and different forms of reinforcement.

In both the Steinman and Redd studies, feedback in the form of verbal or material reinforcers was pitted against the adult instructions. As Steinman and Redd suggest, adult instructions, rather than being merely instructions as to how to respond in the situation, could be conceptualized as implicit promises of future payoff for compliance in the form of adult approval. In short, are the operations reducable to future adult approval vs. some other form of immediate reinforcement, with the confounding factor being the delay of gratification? If this is the case, instructions then become simply discriminative stimuli. This classification does not decrease the importance of instructions as a particularly powerful and economical means of control. One of the important features of instructional control, of course, is the speed with which the effects are achieved; there is no need to wait for trial-by-trial feedback in order to determine the correct way of responding. Instructions provide a summary of desired results and, thereby, short-circuit the subject's attempts to ascertain the correct response from cumulative feedback.

Another question concerns the reason for the effectiveness of instructions. The recent analysis of a more specific aspect of this problem, namely, the manner in which verbal inhibitory rationales gain their effectiveness may be helpful. In this analysis (Parke, 1973), it was argued that verbal rationales may acquire their inhibitory capacities through either classical conditioning

(e.g., the socializing agent accompanies the rationale with punishment) or through operant conditioning (e.g., the socializing agent delivers punishment for failure to comply to a rationale). Alternatively, the child may learn to comply to verbal rationales through observing the inhibitory impact of rationales on other children; similarly, adults may invoke verbal rationales as justification for certain types of their own actions, thereby providing further vicarious exposure. Finally, adherence to rationale-based prohibitions is probably maintained by both avoidance of punishment as well as direct positive reinforcement by parents and other socializing agents. Instructions represent the more general case, and it is highly likely that these same kinds of prior learning histories apply to the acquisition of instructional control. The current studies, however, are not directed at these issues and future research could profitably be directed toward this topic.

Similarly, the developmental course of instructional control also merits investigation in light of Luria's work on the limited effectiveness of instructions with very young children. Moreover, the effectiveness of particular forms of instructional control is age dependent. In our recent work (Parke, 1973) we have found that three and four-year olds show greater inhibition in response to concrete prohibitory instructional rationales (e.g., "Don't touch those toys because they might break") than in response to abstract instructions (e.g., "Don't touch because they belong to someone else"); on the other hand, five and six-year olds show equal inhibition in response to both rationales.

Another illustration of the need for a developmental analysis of this problem is a recent study by Grusec (1973). Five and ten-year olds watched a model while an adult co-observer made either positive, negative, or neutral remarks about the behavior. While the adult's evaluations modified the behavior

of the ten-year olds, the five-year old observers were unaffected by the adult's remarks. The overriding effect of adult comments on imitative responding is clearly age related; whether similar developmental trends may qualify the modifying influence of instructions on the impact of directly administered reinforcers merits attention in future research.

Another issue that has come under discussion in recent years (Parke, 1972) concerns the ecological validity of the type of laboratory experimental paradigm used in these studies. This type of experiment has been useful for investigating the variables that may affect the operation of social cues such as instructions, imitation, and social reinforcement. However, what has been lacking is a demonstration of the ecological validity of these principles. Social learning theorists have failed to demonstrate empirically how their principles apply to naturalistic socialization. In fact, social learning theorists have been guilty of building "a mythology of childhood"--to borrow Baldwin's (1967) phrase--in which a set of effects demonstrated in the laboratory is assumed to actually take place in naturalistic socialization contexts and be an accurate account of how the child is socialized. As a result, there has been a confusion between necessary and sufficient causality; the laboratory experiments tell us only that imitation, social reinforcement, and instructions are possible contributors to childhood learning of societal norms. However, the extent to which these hypothesized processes are, in fact, necessary techniques for adequate socialization is clearly left unanswered. Two sets of issues are involved here. First, is it possible to demonstrate the operation of these principles in naturalistic settings? Success at this level will make a much more persuasive argument for the relevance of these principles to naturalistic socialization. This type of research is particularly important in light of the criticisms

that social learning theory principles have been derived from contrived and artificial laboratory settings. The second issue is a more difficult one, namely, to determine the extent to which these principles are actually necessary for an adequate explanation of naturalistic socialization. This involves two aspects: (a) to what degree social learning processes, such as instructions, social reinforcement, imitation, and punishment actually occur in real-life contexts, and (b) to what extent these processes produce the powerful changes in behavior that our theories assume.

Applying this ecological validity viewpoint to the present experiments is useful in pointing out the areas that could profitably be explored in future research in order to increase the generalizability of the findings. Secondly, it can aid us in understanding some aspects of the current results.

Let us examine the nature of the situation, namely, the experimental context of these studies. Is it legitimate to generalize from this context to more naturalistic situations such as the home and the classroom. More importantly, are there unique features of this experimental paradigm that could contribute to the results. Let us be a typical subject who is invited by a stranger to an unfamiliar environment to play a novel game. There is one feature that stands out: the subject's probable uncertainty and possible apprehension concerning this kind of appropriate behavior in this unfamiliar setting. However, another important feature of this environment is the high degree of control that the experimenter has over the child's alternative responses in this situation. For the subject, one primary aim is to determine as quickly and efficiently as possible the nature of the 'game'. The most direct and unambiguous source of uncertainty reduction is, of course, the experimenter's instructions.

The generalizability of the effects of instructional control is, of course, an open issue. However, it merits further research because instructions in many non-laboratory situations simply don't work very well. It is, perhaps, ironic that one of the breakthroughs in applied behavior modification in classroom settings was that instructions (e.g., classroom rules) alone often were ineffective (O'Leary, Becker, Evans & Saudargas, 1969) whereas, the systematic application of token reinforcement contingencies did bring the behavior under the control of a social agent. Clearly, further work on the contextual limitations of different types of adult control is necessary.

The generalization of imitation also merits attention. Specifically, a distinction needs to be made between "generalized" imitation and the generalization of imitative behavior across situations. The necessity for this distinction is highlighted by the Steinman and Dweck papers. On the one hand, proponents of the generalized imitation position seek ways of reducing the tenacious tendency of children to imitate in order to clarify the basis of that tendency, while Dweck stressed the necessity of building in rules to increase the transituational generality of imitation. Further analyses directed at the specification of the different situational parameters that apparently control imitative behavior within, as well as across, situations, may aid in clarifying these issues concerning generality. Possibly, a combination of the Steinman and Dweck approaches would be fruitful; in the long run, it may be that generalized imitation is under the control of a learned rule developed early in the series. If this is the case, a similar principle may be able to aid our understanding of both generalized imitation and cross-situation generalization of imitation as well.

Another issue concerns the familiarity of the agent. Is it legitimate to generalize from this type of experimental study in which the child interacts with a stranger to naturalistic socialization contexts in which parents and other agents are present with whom the child has established a prior relationship? Comparisons of mothers and strangers indicated that four-year olds obey instructions from female strangers more readily than from their mothers (Landauer, Carlsmith & Lepper, 1970).

An ecological analysis may also yield insights into the operation of different kinds of social cues. Redd's finding concerning the greater effectiveness of negative versus positive comments in eliciting compliance can be better understood by an examination of the manner in which positive and negative social cues are used in the naturalistic environment. Consider the Paris-Cairns (1972) study, which combined naturalistic, as well as experimental methods. In attempting to understand social reinforcement effects, observations of the way in which positive social reinforcers, (e.g., "good, right, fine, OK") and negative social reinforcers (e.g., "Wrong, that's poor, incorrect, no good") were used by adults in school classrooms were made; these observations revealed that positive evaluations were used more frequently and indiscriminately and were less contingent upon children's behavior than negative comments. When these same positive and negative comments were used in a two-choice discrimination learning task, it was found that negative comments after incorrect responses greatly facilitated learning, while positive comments after correct responses had little effect. This ambiguous usage of positive feedback in the naturalistic environment may, in part, account for Redd's observations as well.

Hill's data concerning wrong-blank could possibly be better understood by a naturalistic analyses of the way in which wrong, right, and no

feedback are employed by teachers in classroom settings. Do teachers use different feedback techniques for high and low anxious children, or do they use them in more ambiguous ways for children differing in anxiety level. In other words, the child's anxiety level may be a cue used by teachers in their interactions with children. This does not rule out motivational explanations; rather, it merely points to another possible interpretation and/or another way of examining the child's prior history that may contribute to his performance on the experimental task.

Perhaps Dweck's program comes closest to successfully integrating field and experimental approaches. Moving from the experimental situation to an examination of the nature of teacher-child interaction in classroom settings is an ideal approach to understanding, not only the possible, but the probable ways in which attributions develop.

Another issue that merits attention in future research on social cues concerning the reciprocal nature of the social influence process that ensues between adults and children. From infancy onward, children learn to actively manipulate a variety of social cues in order to modify adult behavior. In our recent work we have been examining the importance of child feedback in disciplinary contexts on adult behavior. Our concern centers on the manner in which parental behavior following the administration of some act of discipline, is altered by the child's reaction to being disciplined. One approach to the issue of child control of parental behavior that we employed in a recent study (Parke & Sebastian, 1972) involves asking grade-school children to judge how the teacher would respond (smile, console versus become angry, threaten, etc.) to different kinds of child reactions to discipline (e.g. defiance, reparation, protest, no reaction) shown on video tape. Our results suggest that, even as

early as second grade, children have clear notions of the ways in which teachers will respond to different kinds of pupil reactions. For example, children who see the video-tape child make reparation are significantly more likely to predict that the teacher will respond positively by smiling than children who observe the video-tape child being defiant.

One word of caution: although the situations that were employed in our study were closely patterned after real-life situations there are clear limitations to this type of research. While these studies indicate how children expect adults to respond, it is necessary to determine by both laboratory analogue experiments and by naturalistic observational studies whether parents, teachers, and other socializing agents do respond to these types of child reactions in the ways our investigations suggest. In any case, this research provides strong support for a bi-directional model of adult-child interaction, in which the role of child social cues in controlling adult behavior is given its proper recognition.

Another contribution that these papers make is in the clarification of "demand characteristics". In recent years, there has been a great deal of concern that our experimental results were due to a set of generally unspecified cues in the situation which were, in turn, producing the results or due to a set of hypotheses generated by the S concerning the purposes of the experiment. The explanatory value of 'demand characteristics' concept has never been clear; the contribution that these experimental series make is to demonstrate that the cluster of social cues that are involved in a complex experimental situation can be both specified and manipulated. This type of research prevents the concept of 'demand characteristics' from remaining an obscure cover-all term to impose on an ad hoc basis to experimental results that one seeks to

dispute. More importantly, it brings into serious question the usefulness or even the necessity for such a concept. When demand characteristics become a specifiable class of experimental variables, both the mystery and value of the term is reduced. Fortunately, our understanding of social influence processes within experiments is enhanced.

What kind of child must we develop in order to handle the data presented in these papers? It is clear that a model that gives explicit recognition to the child's cognitive and information processing capacities as a social problem solver is the most appropriate one.

It is recognized in all of the papers, and most explicitly in Carol Dweck's suggestions concerning generalization of modeling, that this kind of concept formation approach which emphasizes the nature of the general rule governing a class of behaviors is particularly promising. In fact, one of the interesting problems in modeling research is the manner in which the child is able to inductively reason from a variety of instances to the acquisition of a general transferable rule. In Hill's research, the child plays a decision-making role in deducing the meaning of various forms of feedback. In both the Redd and Steinman paradigms, the child is an active participant in deciding what informational cues serve as the most valid guides for his behavior.

Although the aim of these papers has not been to determine the nature of the types of information processing strategies that are activated by these various experimental manipulations, it seems clear that future advances in our understanding of child-adult interaction will be most readily forthcoming by the development of theories that, not only concede that this type of processing must occur, but set as a primary task the specification of the nature of these cognitive processes. This does not mean ignoring the situational determinants,

but rather supplementing these situational analyses with possible cognitive operations that bear a direct link to these situational factors. Inventing internal agents without clear antecedent-consequent observable referents is unlikely to be very helpful: however, theoretically specifying these internal processing strategies is a first step in the eventual manipulation of these cognitive strategies. In combination with careful naturalistic observations, we may eventually be able to, not only predict the effects of social cues, but understand their operation as well.

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